School Energy Coalition (SEC) INTERROGATORY #1 List 1

Interrogatory

Ref: [Ex A/3/1] With respect to the Summary of the Application:

a. P. 2. Please provide a list of departures from the Filing Requirements, together with an explanation for each.

b. P. 6. Please confirm that the impact of the Board's December 2009 report on the cost of capital is a total of $105 million of additional revenue requirement over the two test years.

c. P. 6. Please provide a comprehensive list of all differences in accounting treatment of any capital, operating, or other data in the Application between 2011 and 2012 due to the change from CGAAP to IFRS. Please provide a full calculation of revenue requirement for 2012 using CGAAP.

Response

a. As noted in the Pre-filed Evidence (EB-2010-0002), the Application is substantially consistent with the Board Chapter 2 of the Filing Requirements for Transmission and Distribution Applications dated May 27, 2009. Please note that, while the Company is aware of the Board's amended Chapter 2 of the Filing Requirements for Transmission and Distribution Applications dated May 27, 2010, it was issued after this Application was filed. For this reason and consistency purposes, the list of departure below is based on the previous Filing Requirements dated May 27, 2009.

No.	Exhibit[1]	Item	Explanation
1	Rate Base	Continuity statements should be reconciled to the calculated depreciation expenses and presented by asset account (Ref.: 2.3.3 Accumulated Depreciation)[1]	Largely provided at D2-3-1 and D2-3-2 except for "by asset account"
2	Operating Costs	Purchase of Non-Affiliate Services (Ref.: 2.5.6 Purchase of Non-Affiliate Services)[1]	Not practical given the volume and number of monthly transactions and Hydro One's work-based approach.
3	Operating Costs	Breakdown of total salaries, wages, benefits charged to OM&A (Ref.: 2.5.4 Employee Compensation Breakdown)[1]	Please refer to I-4-35 (Work-based approach does not allow for split out of Transmission

No.	Exhibit[1]	Item	Explanation
			information)
4	Operating Costs	Depreciation, Amortization and Depletion "by asset group" for Historical, Bridge and Test Years (Ref.: 2.5.7 Depreciation/Amortization/Depletion)[1]	Could provide upon request.
5	Operating Costs	Detailed calculations of rate of return on non-core delivery activities, if they exist (Ref.: 2.4.2 Variance Analysis)[1]	Not practical given the volume and number of monthly transactions and Hydro One's work-based approach.

[1] OEB's Chapter 2 of the Filing Requirements for Transmission and Distribution Applications amended on May 27, 2009

b. Without details of the calculation provided in the question, we cannot confirm that the impact to revenue requirement of the Board's December 2009 report on the cost of capital over the two test years is $105M.

c. Hydro One stated that its application for 2011 is based on CGAAP and its application in respect of 2012 is based on the Board's modified IFRS (MIFRS) with specific requested exceptions. Hydro One also stated its assumption that the "CGAAP revenue requirement is generally equivalent to that calculated under IFRS." As such, there are no differences between the revenue requirement calculation used in 2011 and 2012.

School Energy Coalition (SEC) INTERROGATORY #2 List 1

Interrogatory

Ref: [Ex. A/4/1] With respect to the Financial Summary

a. P. 4. Please provide the status of the productivity objective (i.e. results relative to objective) for each of the years 2006 through 2009 and forecast for each of the years 2010 through 2012.

b. P. 13. Please estimate the total revenue requirement impact in each of the test years of complying with the "more numerous and stringent" compliance standards arising out of the 2003 blackout. Please provide copies of any benchmarking or other comparative reports showing the impact of the blackout on the revenue requirements of other transmission utilities affected.

c. P. 16. Please advise the total annual cost of the backup to the OGCC, broken down into major cost categories. Please identify and quantify any other benefits achieved from this spending in addition to Grid Control redundancy.

d. P. 17. Please provide the text of the accounting standard, in both CGAAP and IFRS, that requires mid-life overhauls to be operating costs rather than capital expenditures.

Response

a. The transmission unit cost measure used to assess productivity in 2009 was defined as follows:

$$\text{Transmission Unit Cost (using Total Capital)} = \frac{\text{Operations and Maintenance (O\&M) costs + Total Capital}}{\text{Asset Value (Gross Fixed Asset (GFA))}}$$

Results related to objectives are shown in the table below:

Year	**2006**	**2007**	**2008**	**2009**
Unit Cost (using Total Capital)	6.1%	7.7%	8.6%	10.1%
Budget Target (using Total Budget Capital)	5.7%	8.9%	9.6%	10.6%

The transmission unit cost measure being used to assess productivity in 2010 is defined as follows:

$$\text{Transmission Unit Cost (using Sustaining Capital)} = \frac{\text{Operations and Maintenance (O\&M) costs + Sustaining Capital}}{\text{Asset Value (Gross Fixed Asset (GFA))}}$$

Historical and forecast objectives for each of the years 2010 through 2012 related to objectives are shown in the table below:

Year	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Unit Cost (using Sustaining Capital)	3.8%	4.3%	4.4%	4.3%	-	-	-
Budget Target (using Budget Sustaining Capital)	4.1%	5.0%	5.1%	4.6%	4.8%	5.8%	5.4%

b. It is estimated that the total revenue requirement impact in each of the test years of complying with the "more numerous and stringent" compliance standards would be in the range of about $25-$30M per year. This includes approximately $10M capital and $6M OM&A incremental expenditures respectively in the test years.

The primary cause of 2003 blackout was either not adhering to processes, procedures and training or not having effective processes in place by some entities who are owners and/or operators of the interconnected bulk electric system. As a result, some of the key recommendations from this investigation were to:

- Strengthen the NERC compliance enforcement program;
- Initiate control area and reliability coordinator reliability readiness audits;
- Evaluate vegetation management procedures and results;
- Improve operator and reliability coordinator training;
- Evaluate reactive power and voltage control practices;
- Improve system protection to slow or limit the spread of future cascading outages;
- Clarify functions, responsibilities, capabilities and authorities;
- Establish guidelines for real-time operating tools;
- Install additional time-synchronized recording devices as needed; and
- Improve system modeling data and data exchange practices.

It is worth noting that Hydro One was not found to be a direct or indirect contributor to the blackout. However, a steering committee was put in place to identify any enhancements or corrections stemming from the US-Canada joint task force and North American Electric Reliability Corporation (NERC) blackout report recommendations. A list of action items undertaken and their closure since 2003/2004 is attached. Note that some of the action items are listed as ongoing because they should be updated on a periodic basis to keep them current.

Incremental cost and/or revenue requirement resulting directly from the 2003 blackout have not been tracked as they were considered enhancements to the normal work programs. Examples of some of the significant ongoing activities of this nature include:

- Comprehensive Operators Training
- 24 x 7 technical support at the Ontario Grid Control Centre (OGCC) -6 FTE
- The Ontario Power System Restoration Plan (OPSRP) Working Group, under the auspices of the Emergency Preparedness Task Force (EPTF)

Further, and more significantly, the 2003 blackout triggered the U.S. Energy Policy Act of 2005 and authorized the creation of a self-regulatory "electric reliability organization" that would span North America, with FERC oversight in the U.S. The legislation stated that compliance with reliability standards would be mandatory and enforceable. This triggered expedited development of "numerous and stringent" mandatory standards by the North American Electric Reliability Corporation (NERC). Currently approved standards are listed on the NERC website http://www.nerc.com/files/Reliability_Standards_Complete_Set.pdf.

There are a total of approximately 126 NERC Standards with over 1400 requirements and sub-requirements that are currently effective in Ontario. Of these, 67 standards with over 550 requirements and sub-requirements contain obligations that would apply to Hydro One. Seven Northeast Power Coordinating Council Directories and three Criteria documents also contain obligations that apply to Hydro One.

Hydro One's strategy for a single provincial operating centre has allowed the company to meet the numerous and more stringent compliance requirements for control centres stemming from the 2003 blackout in a very effective manner with significantly lower costs than otherwise would have been the case for the 11 geographically located control centres that existed prior to the amalgamation strategy.

For example, another set of standards that have required significant capital and OM&A expenditures are the Critical Infrastructure Protection (CIP) NERC Standards. The cost of becoming compliant with the CIP Standards has been in excess of $35M over the last few years. Another standard has required Hydro One to install and maintain back up diesel generators at critical stations for effective system restoration following a major blackout. As such, these standards and requirements have an ongoing operating expense associated with them.

In addition, it is worth noting that several new and/or modified standards and requirements are under development. The costs and administrative burden will grow as new standards, requirements and measures are continually added. In the future, NERC's proposed "100 kV Brightline" definition for the mandatory compliance to

standards could result in a significant increase in both annual OM&A and Capital investment required by Hydro One.

Hydro One does not have any benchmarking or other comparative reports showing the impact of the blackout on the revenue requirements of other transmission utilities. However, to Hydro One's knowledge, the various owners and operators of the North American Bulk Electric System have all been similarly affected as per their formal and informal comments to NERC and FERC along with provincial regulators in Canada.

c.

Backup to the OGCC	**$M**
Annual Vendor licensing and support costs	2.3
Annual Labour costs	0.4
Annual Accommodations costs	0.3
Total Annual costs	3.0
Total Capital Investments	11.0

The total capital investment includes all control computers and any facility (HVAC, UPS) enhancements required to support the Backup control centre. It does not include building or shared facility changes such as the backup generator.

The Backup Control Centre is a compliance requirement of NERC Standard EOP-008 Plans for Loss of Control Center Functionality. Beyond complying with NERC mandated Control Centre redundancy requirements as well as fulfilling the obligations of a prudent transmission system operator, Hydro One does not realize any other benefits from these expenditures.

d. Most of Hydro One's asset overhaul work is of a repair and maintenance nature.

Asset "betterments," such as those that result from expenditures to life extend assets over their original expected service life expectations, are capitalized under CGAAP. However, this accounting treatment is rarely used by Hydro One because the use of component accounting makes it largely redundant. Overhaul work resulting in life-extension of an individual asset is usually capitalized through the replacement of the asset's individual components. Betterment accounting is only used where an asset life is extended without component replacement. Component accounting will continue virtually unchanged under IFRS.

CICA Handbook s. 3061 "Property, Plant & Equipment (PP&E)" paragraph 26 provides the support for betterment accounting and its states that "the cost incurred to enhance the service potential of an item of PP&E is a betterment. Service potential may be enhanced when there is an increase in the previously assessed physical output or service capacity, associated operating costs are lowered, the life or useful life is

extended, or the quality of output is improved. The cost incurred in the maintenance of the service potential of an item of PP&E is a repair, not a betterment."

Component accounting is largely optional under CGAAP but is required under IAS 16.

Hydro One Blackout Steering Committee Closure Documentation and Further Actions

Item #	Recommendation from Originating Investigation	Originating Investigation	Outcome	Action
1	Operating Facilities staff should be available 24 X 7 to the operating centre	Hydro One Operating	The August 14th Blackout further supported the already identified need to provide 24 x 7 technical support coverage for the Network Management System (NMS) and Supervisory Control and Data Acquisition (SCADA) at the Ontario Grid Control Centre (OGCC). The approved positions for six Shift Control Engineers (SCE) to provide 24 x 7 coverage have been filled with training to commence in January 2005. Present plans are to have the SCE function fully operational by end of April 2005. Reference: Closure Report for Blackout Item #1 The SCE function was fully operational in Spring 2005.	☒Complete ☐Ongoing
2	The operating team structure and process to manage the flow of information and queries from customers and non-operating personnel should be reviewed. The period of time between when the event occurred and the establishment of the Incident Command Centre warrants special consideration.	Hydro One Operating	1. During the blackout of August 14, 2003 the four attended Control rooms were forced to handle a huge volume of telephone calls. Improved communications technology, adherence of Market Participant to the communication protocols as per the Market Rules, and an improved Operating organizational structure could have substantially reduced the number of phone calls and more effectively manage the communications by on-shift operating staff. 2. The development of Ontario Grid Control Centre (OGCC) in Barrie with the accompanying changes to infrastructure, process and organization has substantially improved the capability for on-shift operating staff to manage communications during an system event. 3. In addition, a new and robust phone system including dedicated phone lines and enhanced conferencing capabilities has been installed at the OGCC. An employee information line to eliminate staff calling into the Control Room for direction during a major event has also been implemented. 4. A pilot will be conducted to assess the value of assigning a staff position in the control room to handle all customer and other non-operating queries. Reference: Closure Report for Blackout Item # 2 The intent of #4 above is being addressed within the OGCC Transformation Project initiated in mid 2005. The organizational changes in the control room and the associated changes in roles and accountabilities will address this	☐Complete ☒Ongoing

			concern.	
3	The rotational load shedding process should be reviewed to address rotational load shedding when implementing these schedules with major portions of the system interrupted. In addition, the process should be reviewed to address the impact to critical loads and notification requirements to all affected parties. Transmitters and Distributors should review procedures covering coordination of load shedding and load restoration. The IMO should review Market Rules and procedure documentation to ensure there is clarity in roles and definitions related to critical and priority loads. Transmitters and embedded LDCs, as well as LDCs that are Restoration Plan Participants develop and ensure rotational load shedding schedules are in place, readily available, and accommodate those priority loads identified as a result of the blackout. Where a Transmitter has direct operating control of an LDC's load shedding device, it is necessary for the parties to have a prior mutual understanding of the feeders included in the load shedding schedules. Transmitters and Restoration Plan Participants with control of restoration related breakers should place greater emphasis on Rotational Load Shedding (RLS) procedures through plan reviews and/or tabletop exercises. RLS schedules need to be fine-tuned and recognize priority loads in their service territory. Transmitters and Restoration Plan Participants with control of restoration related breakers should review requirements related to existing load shedding plans and procedures when larger cuts are called for. IMO will continue to respond to specific emergent health and safety issues during restoration on a best effort basis while recognizing that achieving the OPSRP restoration objectives is itself a response to province wide health and safety risks.	Hydro One Operating Restoration Working Group (Rec. 2) Restoration Working Group (Rec. 8) Restoration Working Group (Rec. 8) Restoration Working Group (Rec. 9)	The IESO and Hydro One constituted a joint working group to address the recommendations on rotational load shedding and critical and priority loads. <u>The IESO/Hydro One Rotational Load Shedding Working Group concluded that</u>: - The existing RLS process is generally sound, and Hydro One's new tool effectively automates their portion of the RLS process. Operating procedures should be reviewed to reflect this enhanced capability. RLS must be implemented so as to maintain fairness among Market Participants. - The lower limit where RLS control action should be considered viable is a system-wide load of about 10,000 MW assuming most of the ICG is in service. Below this level effectiveness will be severely reduced because of higher voltages arising at stations where the load is reduced by RLS. - Market Manuals require LDCs to make 50% of their load available for RLS, and 30 to 35% available for UFLS, which this leaves the remaining load available for Critical Loads, plus Priority 1 Loads. This allocation is reasonable. <u>The IESO/Hydro One Critical and Priority Working Group concluded that:</u> - Standardized terminology should be adopted with clear definitions. The term "critical load" should be reserved for loads essential for power system restoration, and the term "priority loads" is reserved for loads essential for public health and safety, and/or significant environmental impacts. - Distributors and CWCs must be required to identify their critical and priority loads to their controlling authority and must have identified these loads in their EP Plans. EP Plans must state that priority loads have been vetted through emergency Municipal Control Group, as well as the Transmitter. - IESO and Hydro One control room staff must be provided, as required, with the appropriate up-to-date information on critical and priority loads. - Market Rules Chapter 5 Section 5.10.2.2 should be revised to reflect the official roles and responsibilities of the various restoration plan/market participants. - Standard terminology for alternate power supplies should be adopted. Critical & priority Loads Have been dealt with discussions with the IESO.	<u>Rotational Load Shedding</u> ☒Complete ☒Ongoing
4	The rotational load shedding procedure should be reviewed and practiced with all Market Participants to ensure a clear understanding of roles and	Hydro One Operating	During the blackout it was evident that not all market participants had a full and proper understanding of rotational load shedding and the respective roles and responsibilities of the IMO, transmitters and distributors. Seven Power System	☐Complete ☒Ongoing

	accountabilities.		Restoration Workshops were staged throughout the province in 2004 per the direction and endorsement of the Emergency Preparedness Task Force. These workshops trained and practiced the market participants on the implementation of rotational load shedding. The workshops were very well attended with over 400 operators and support staff attending. There were no notable market participant companies that did not participate. Over seventy staff from Hydro One attended.	
5	A plan should be developed for controlling unattended stations in an expeditious manner in the event NMS/SCADA control is lost. This plan should include a procedure for directing staff to unattended stations and for maintaining an ongoing record of the whereabouts of assigned staff. Restoration Plan Participants should review plans to get sufficient qualified staff to major unattended facilities such as transmission stations, as required by their Restoration Plan Participant Attachments. Consider the need for response time standards for Restoration Plan Participants.	Hydro One Operating Restoration Working Group (Rec. 14)	During the blackout of August 14, 2003, it was necessary to dispatch Hydro One staff to multiple unattended stations. Investigation has determined that the existing plan need to be augmented to provide more detail for controlling unattended stations and for maintaining an ongoing record of staff locations during an event of this magnitude. Network Management Instruction (NMI-2711) was revised to include a plan for controlling unattended stations and a procedure for maintaining an ongoing record of staff whereabouts. This recommendation was implemented on May 27, 2004. Reference: Closure Report for Blackout Item #5	☒Complete ☐Ongoing
6	Training should be provided to staff in the Stations and Remotes organization to ensure familiarity with local operation of SCADA systems.	Hydro One Operating	During the restoration process after the August 14, 2003 blackout, it was apparent that staff did not have up to date knowledge of how to operate equipment at the remote station's local interface. The investigation concluded that the existing training program for Grid Operations needed to be reviewed and augmented. Training modules need to be developed for each control type existing at stations and a training update strategy and delivery plan established. The knowledge required by staff to operate equipment at the remote stations local interface was documented Reference: Closure Report for Blackout Item #6 Information on the type of controller at each station is available for a large number of the stations. However, the information is missing for some of the stations. Remote operating control from the Richview Backup Centre will be available in 2006. Furthermore, the concept of establishing seven backup centres at strategic locations within the Province is under study. The development of the capability requirements needs to take these initiatives into account and be aligned with the future direction. 1. Include requirement to document type of controller at stations during site visits 2. Provide Grid Operations with the required capability for operating equipment at the remote station's interface by	☒Complete ☒Ongoing

			Grid Operations staff. 3. Grid Operations to provide proposal (strategy and plan) for meeting the training requirements	
7	The structure, areas of responsibility and restoration alignment of staff within the IMO and Hydro One should be reviewed to determine the overall effectiveness. Restoration Plan Participants should review factors such as control room configuration, additional communication equipment, span of control etc. applicable during major emergencies, with the intent of learning from the successes of other similar participants.	Hydro One Operating Restoration Working Group (Rec. 10)	The IESO and Hydro One constituted a joint working group to address this recommendation. The Working Group concluded that: - The responsibilities of the Hydro One on-shift staff including the newly established Asset Manager position at the OGCC have been established. Co-ordination presently takes place between the IESO Senior Operating Officer and the Hydro One Sector Control Supervisor as well as between the IESO Control Room Officer and the Hydro One Controller. - Establishing teams within the OGCC to pursue the restoration of electrical paths would lead to a more effective and efficient restoration. - The lines of communication between the IESO and Hydro One control room organizations for normal operations and during restoration should be further reviewed. The present arrangement has the Hydro one Asset Manager and the IESO Shift Superintendent not normally communicating to any specific position within the respective control centres. The OGCC Transformation Project, initiated in mid 2005, has implemented organization changes in the control room The roles and the accountabilities for the various positions within the new control room organizational structure are being documented. 1. Review and document, with the IESO the communication protocols between on-shift staff for normal operations and during restoration. 2. Establish and document procedures for the implementation of restoration teams. 3. Hydro One and the IESO to incorporate the agreed to communication protocols and the restoration path team approach into the restoration drills.	☒Complete ☒Ongoing
8	A workshop should be developed consisting of the IMO / Hydro One/ Market Participants to promote a full understanding of accountabilities and communication protocols as per the current Market Rules and restoration procedures. All Restoration Plan Participants review procedures (e.g. OPSRP, Section 6) and demonstrate capability	Hydro One Operating Restoration Working Group	During the blackout it was evident that not all market participants and restoration plan participants had a full and proper understanding of communications protocols and accountabilities in restoring the IMO Controlled Grid. Seven Power System Restoration Workshops were staged throughout the province in 2004 per the direction and endorsement of the Emergency Preparedness Task Force. These workshops trained and practiced the restoration plan participants and market participants on the correct communication protocol and accountabilities when restoring the IMO controlled	☒Complete ☒Ongoing

	through training and exercises. This applies to daily operation as well as major emergencies. Transmitters and Distributors should review procedures covering coordination of load shedding and load restoration. Clarify, through training, the roles and authority of Restoration Plan Participants. All parties should review transmission circuit energization procedures including the importance of following procedures. - Independently opening breakers that are off-potential - Notifying connected restoration market participants prior to circuit energization, if at all possible The IMO should review Market Rules and procedure documentation to ensure there is clarity in roles and definitions related to critical and priority loads. Transmitters and embedded LDCs, as well as LDCs that are Restoration Plan Participants develop and ensure rotational load shedding schedules are in place, readily available, and accommodate those priority loads identified as a result of the blackout. Where a Transmitter has direct operating control of an LDC's load shedding device, it is necessary for the parties to have a prior mutual understanding of the feeders included in the load shedding schedules. Transmitters and Restoration Plan Participants with control of restoration related breakers should place greater emphasis on Rotational Load Shedding (RLS) procedures through plan reviews and/or tabletop exercises. RLS schedules need to be fine-tuned and recognize priority loads in their service territory. Evaluate and disseminate lessons learned during system restoration	(Rec. 2) Restoration Working Group (Rec. 2) Restoration Working Group (Rec. 3) Restoration Working Group (Rec. 4) Restoration Working Group (Rec. 8) US-Canada TF (Rec. 29)	Grid. The workshops were very well attended with over 400 operators and support staff attending. There were no notable restoration plan participants or market participant companies that did not participate. Over seventy staff from Hydro One attended.	
9	The results / findings of the investigation should be developed and delivered as training material to all applicable NOD staff. This includes technical information such as how each area was rebuilt and	Hydro One Operating	Training Presentations on the Blackout were developed and delivered to all NOD staff during the course of their regularly scheduled training sessions during 2004.	☐ Complete ☒ Ongoing

	training in core competencies such as communication protocols and techniques. All Restoration Plan Participants review procedures (e.g. OPSRP, Section 6) and demonstrate capability through training and exercises. This applies to daily operation as well as major emergencies. Reinforce through training appropriate operational response in under-frequency conditions. All parties should review transmission circuit energization procedures including the importance of following procedures. - Independently opening breakers that are off-potential - Notifying connected restoration market participants prior to circuit energization, if at all possible Evaluate and disseminate lessons learned during system restoration	 Restoration Working Group (Rec. 2) Restoration Working Group (Rec. 2) Restoration Working Group (Rec. 4) US-Canada TF (Rec. 29)	The associated learning objectives required for competencies associated with blackout restoration have been included in the annual Dispatcher/Controller Training Program. Modules include: - Response to Multiple Contingencies on both the LV and HV systems. - Loss of Multiple High Voltage System Elements - Power System Collapse A list of Training Modules included in the Dispatcher/Controller Training Program can be found in NMI-8000 Appendix B.	
10	Hydro One should request the IMO to review and augment, as required, the OPSRP with regards to opening LDC sub-transmission breakers within the LDC system.	Hydro One Operating	The Ontario Power System Restoration Plan (OPSRP) Working Group, under the auspices of the Emergency Preparedness Task Force (EPTF), has completed extensive revisions to the OPSRP to capture all related blackout recommendations and opportunities for improvement. The Public OPSRP (Market Manual 7.8) and the Confidential version were issued in December 2004. Enhanced direction and operator strategy for the opening of circuit breakers that are off potential were included in the revisions. A listing of all revisions may be obtained from the Table of Changes in the OPSRP. The Power System Restoration Workshops addressed all requirements related to the opening of circuit breakers that are off potential. Hydro One participated in these workshops.	☒Complete ☐Ongoing
11	The existing communication protocols as per the current Market Rules should be reviewed with the IMO with regards to their effectiveness under system disturbance events.	Hydro One Operating	The Ontario Power System Restoration Plan was revised to create new guidelines to govern the IESO communications with Nuclear operators, Fossil operators, transmitters and other Market Participants. These protocols were emphasized and practiced during the Power System Restoration Workshops (refer to Item # 8). The effective communication of task assignment to transmitters was included in this review and the IESO SCO on “Verbal Communications” revised. Market Manual 7.1 will be revised to further clarify communications requirements when tasks are delegated.	☒Complete ☐Ongoing
12	Control facilities to expedite the opening of off	Hydro One	During the restoration of load following August 14, 2003 blackout, hundreds of	

	potential breakers such as group opening functionality of breakers should be investigated.	Operating	breakers at stations remain in a close state following the black out and needed to be opened in order to restore load and generation in a controlled matter. The report recommends that group breaker opening hardware schemes be design utilizing existing breaker failure, bus protection schemes and zone auxiliary trip modules to initiate group openings under off potential supervision and implemented at each BES Stations in 2006 and DESN Stations in 2007. Reference: Closure Report for Blackout Item #12 The Blackout Steering Committee accepted the report. Due to the complexities and cost implications in providing a group breaker opening facility the Committee resolved that no further action be taken on this item.	☒Complete ☐Ongoing
13	The extent to which all Market Participants fulfilled their load shedding obligations during the event should be discussed with the IMO. During the load restoration phase, after the IMO controlled grid is basically restored, the IMO should allocate load more fairly among market participants to the extent permitted by the capacity/energy situation.	Hydro One Operating Restoration Working Group (Rec. 11	The review by the Market Assessment and Compliance Department (MACD) indicated that the IESO met the intent of the Market Manuals to rotate load equitably when time permits. The IESO continues to reinforce through training sessions and in the workshops/table top exercises conducted in 2004 (refer to item # 8) the need for overall fairness in implementing rotational load shedding to the extent possible considering system conditions.	☐Complete ☒Ongoing
14	The current communication linkages between Hydro One and the IMO should be reviewed and consideration given to dedicated phone lines. In addition, there is a need to determine if enhanced conferencing facilities and/or familiarity training is required. Restoration Plan Participants should review factors such as control room configuration, additional communication equipment, span of control etc. applicable during major emergencies, with the intent of learning from the successes of other similar participants.	Hydro One Operating Restoration Working Group (Rec. 10)	The IESO and Hydro One commissioned a joint team to assess the need for improved communication linkages. The Communication Infrastructure team recommended that: a) Local PBXs between IESO and Hydro One primary and backup Control Rooms be linked together via the Hydro One fibre optics network b) IESO to take immediate action to increase the number of calls that can be accommodated by their Control Room call management system. (This has been done and will be further expanded in 2005.) New phone systems have been implemented at both the IESO and Hydro One. Training on the use of conferencing capability has been conducted. The IESO is unwilling to proceed at this time with linking local PBXs between the IESO and Hydro One primary and backup control rooms. 1. Review the effectiveness of the conferencing facilities with the new phone system installed at Hydro One 2. Implement enhancements to the conferencing facilities as required.	☒Complete ☐Ongoing
15	Breakers automatically opened by the RLSS should be identified (flagged) on NMS/SCADA station displays to clearly identify they were opened by the RLSS.	Hydro One Operating	During the restoration of load following the blackout of August 14, 2003, it was identified that breakers automatically opened by RLSS were not displayed differently on the NMS from breakers manually or automatically opened by other applications. The investigation concluded that breakers opened by the Rotational Load	☒Complete ☐Ongoing

			Shedding Scheme (RLSS) should be identified by a unique colour on the NMS displays that is different from the indications for non-RLSS opened breakers. The NMS was updated to provide this capability March 23, 2004. Reference: Closure Report for Blackout Item # 15	
16	The required number of fully functional work centres/pods within the operating centre should be reviewed for system wide black out events.	Hydro One Operating	During the August 14, 2003 blackout operating control of the Hydro One system was carried out from four control rooms, two of which resided at Richview TS (Transmission Operating Management Centre, Greater Toronto Area Operating Centre), one at Middleport TS and one at Buchanan TS. Since that time operating control has been centralized in one centre with the opening of the Ontario Grid Control Centre (OGCC) in 2004. The existing control room facilities at the OGCC were reviewed to determine if there are a sufficient number of primary and emergency consoles at the Centre to manage an event of the magnitude of the August 14, 2003 blackout. The assessment concluded that there are sufficient consoles/work centres available for an event of this magnitude. Reference: Closure Report for Blackout Item # 16	☒Complete ☐Ongoing
17	The reliability of the communication network (Northern megastream, FRAD Relay) should be reviewed and improved. Restoration Plan Participants should review systems providing critical equipment monitoring and control information to the IMO from the transmitters to ensure redundancy is in place (duplicate paths if necessary) that is not compromised by a single contingency.	Hydro One Operating Restoration Working Group (Rec. 15)	Specific telecommunications failures during the August 14th 2003 Blackout led to SCADA failures and in turn to loss of operating control of multiple stations out of Middleport TS and Trout Lake TS. The failures were investigated and attributed to communications that are leased from local Telecom companies. The vast majority of critical telecom services used for power system operation purposes use the Hydro owned telecom network which was not affected during the August 14th Blackout. The two specific August 14th telecom failures have been investigated and remedial actions have been completed by transferring these and other critical telecom services to the Hydro-owned high reliability telecom network. Reference: Closure Report for Blackout Item # 17	☒Complete ☐Ongoing
18	The priority and display of system and equipment alarms during system disturbance events should be assessed.	Hydro One Operating	During the restoration of load following the blackout of August 14, 2003, it was identified that the large number of alarms received made it difficult for Operators to decipher major alarms from those of a more minor nature. The move from the Quindar alarm platform to Network Management System (NMS) has greatly improved alarm handling capability. However, further work and research is required to further enhance alarm management. Reference: Closure Report for Blackout Item # 18 System Control Engineers at the OGCC monitor the status of the NMS Network Model and Contingency Analysis programs on a continuous basis, 24 X 7 and alert the Control Room of any failures. New alarms are review on an ongoing basis to ensure the number of alarms is minimized and, the text is standard and appropriate priority is assigned.	☒Complete ☒Ongoing

			Network Operating and technical support staff will keep abreast of any new developments in the Industry for more effective alarm management.	
19	The existing arrangement of having the screens within each console split on the Uninterruptible Power Supply (UPS) should be reviewed and consideration given to changing the split to be on a per console basis.	Hydro One Operating	During the blackout of August 14, 2004, it was identified that the main Network Management System (NMS) navigation panels at the Transmission Operating Centre (TOMC) were not connected to the Uninterruptible Power Supply (UPS), resulting in the loss of NMS navigation. The investigation concluded that there was a need to have all UPS supplies to NMS consoles standardized. As a minimum, all consoles at a workstation are to be supplied fully from the same UPS such that, at most, the lost of an UPS will only affect one-half of the workstations. The Ontario Grid Control Centre (OGCC) Control Room was designed and built to ensure an automatic redundant UPS supply is always available to each NMS Console. In the UPS backup design for the Richview Backup Control Centre (RBCC) Control Room the loss of one UPS will only effect one half of the Control Room NMS workstations as all consoles in each workstation will be fully supplied from one UPS. The RBCC to scheduled to be in service July 2005. Reference: Closure Report for Blackout Item # 19	☒Complete ☐Ongoing
20	The location of remote control facilities at remote sites should be reviewed to ensure they are centralized at the site, especially for key large stations such as Cherrywood TS.	Hydro One Operating	During the August 14, 2003 blackout, SCADA control was lost for some sites. This loss required dispatching operators to the local sites to monitor and initiate control actions to facilitate system restoration. The local controller is intended to provide these capabilities. However, for some of the larger multi-voltage stations, more than one RTU and associated local controllers were installed. Each local controller provided monitoring and control for only part of the station, and did not provide total visibility of the whole station from one location. New standard practices have been developed and enacted so that local control shall provide total station visibility from one location. This provides timely and more effective local monitoring and control and restoration of the power system. Remedial implementation has been factored into near future investment plans - 2005-2009. Reference: Closure report for Blackout Item # 20 & # 28 The use of VSS clients as an alternative means of substation control was reviewed. The VSS investment is not warranted considering the current strategy/investment in a full back-up center at Richview and disaster recovery sites under consideration. Furthermore, the vast majority of control failures are communication medium failures in which case the VSS control would not be available.	☒Complete ☐Ongoing

			1. Develop new DESN and terminal station control standards that incorporates the new local control conceptual designs. 2. Implement new control standards in accordance with the corporate work program prioritization process	
21	The security of the Middleport TS phone system should be investigated to ensure it fails over to dc supply.	Hydro One Operating	The phone system (PBX) at Middleport was AC powered and thus failed on August 14th and remained unavailable until AC power was restored to the station. Modifications were made at Middleport to supply the Middleport phone system (PBX) from the DC system.	☒Complete ☐Ongoing
22	Reliability of the voice communication facilities (PSTN / MSAT / PMR) at key stations should be investigated and standards established.	Hydro One Operating	Hydro One provides and maintains voice communication facilities for the purposes of communicating between Hydro One facilities (control centres, stations) and with the IESO. The existing communication facilities meet the Market Rule requirements for communication with the IESO. However, the communication facility requirements within Hydro One for operations have not been articulated. The requirements of the IESO have served as a de facto standard for Hydro One internal requirements. Hydro One requirements need to be articulate and a standard established taking into account station classes (e.g. hub sites), need for backup facilities (e.g. MSAT and PSTN), location of facility within the station, and stations on the OPSRP identified restoration paths. 1. Establish standard for voice communication facilities for each station class and develop a plan to conform to the standard. 2. Implement the plan to respect the new control standards in accordance with the corporate work program prioritization process	☒Complete ☐Ongoing
23	The use of cell phones and satellite phones should be assessed in terms of availability, accessibility and service provider performance. Guidelines on the provision/use of communication facilities (PSTN Vs MSAT Vs wireless) for emergency response should be clearly annunciated.	Hydro One Operating	Satellite communications is the most reliable communication alternative to the public switched telephone network for emergency conditions. Cellular telephones and pagers can not be relied upon during times of high use, severe weather, electricity system interruptions, and large and small-scale telecommunications problems. Cellular service can be intermittent or even unavailable for every day use in rural and urban parts of the Province. Hydro One is meeting the market rule requirements for contingency communications. However, Hydro One's requirements for operational contingency communications need to be reviewed and articulated. These requirements will be identified consistent with the communication standard to be established as per the future action for Item # 22 Reference: Closure report for Blackout Item # 23 1. Assess the feasibility and value of using the OGCC Mobile Radio System as an alternative for contingency communications. 2. Determine requirements for operational contingency communications consistent with the developed communication standard (item # 22) and	☒Complete ☐Ongoing

			the feasibility assessment on using OGCC Mobile Radio System. Identify locations where these facilities should be installed/maintained. 3. Implement plan to install additional contingency communication facilities in accordance with the corporate work program prioritization process.	
24	A standard set of key operating information (in hard copy), and operating tools should be defined and readily available to operating staff for emergency situations when automated information systems fail. Ensure emergency response processes are adequately supported (e.g. hardcopy available as backup if electronic access fails)	Hydro One Operating Restoration Working Group (Rec. 20)	During the blackout of August 14, 2004, concern was expressed on the difficulty and time consumed in accessing and retrieving information from the computer data bases during emergencies. The investigation concluded there was a need to have a complete set of key operating information available to the Control Room at the Ontario Grid Control Centre (OGCC) and the Richview Backup Control Centre (RBCC). This information has been made available via DVD for personal computers and via hard copy where necessary. A process has been put into place to maintain this set of key operating information. Reference: Closure Report for Blackout Item # 24	☒Complete ☐Ongoing
25	Breakers failing to operate as expected should be investigated and corrective action taken as appropriate	Hydro One Operating	The causes of the breakers failing to operate as expected during the Blackout Restoration on Aug.14, 2003 have been investigated by Hydro One. Hydro One currently manages almost 4200 circuit breakers, consisting of six differing voltage classes, over twenty different manufacturers, with a multitude of types, ratings, as well as insulation/interruption media. Of these twenty-seven breakers were reported during the event as failing to operate as expected. The main contributors for the breakers failing to operate as expected were either associated with air leaks or hydraulic leaks. A review the maintenance history indicated that all of the maintenance on the blackout breakers was up to date as of August 14, 2003 as per the maintenance program. The investigation concluded that: • The significant of the system restoration breakers be considered in prioritizing maintenance and program activities • Work Standard documents for breakers be reviewed to ensure all failure modes are addressed • Installing back-up ac stations service supply at critical (or portable ac station service supply should be considered. Reference: Closure Report for Blackout Item # 25 1. Assess the need to consider breakers identified as system restoration breakers as a factor in prioritizing routine maintenance, corrective maintenance and program activities. 2. Based on an assessed need (# 1 above) update the work prioritization elements to include breakers identified as system restoration breakers as a factor for prioritizing future work.	☒Complete ☐Ongoing

			3. Review, and revise as required, the work standard documents for oil breaker, GIS, SF6 and Air Blast to assure that all failure modes are addressed especially on the breakers required for system restoration. 4. Investigate the possibly of installing back-up ac station service supply at critical sites or some type of portable ac station service supply to reduce the risk of a breaker failure during a loss of station service. This outcome will be consistent with the determinations made under Item # 27. 5. Implement plan to install back-up ac station service supply, as required, in accordance with the corporate work program prioritization process and consistent with the outcome of the assessment in Item # 27.	
26	The need for a second diesel at the HONOC should be re-assessed in light of experience gained from this event.	Hydro One Operating	A detailed analysis of the reliability of power supply to the Ontario Grid Control Centre (OGCC) and the consequences should the critical functions of the OGCC be lost coincident with a widespread power outage event was conducted. The assessment concluded that a second diesel should be installed at the Ontario Grid Control Centre (OGCC). The second diesel was placed in-service September 30, 2004. Reference: Closure Report for Blackout Item # 26.	☒Complete ☐Ongoing
27	The backup power capability at all stations should be reviewed to ensure the facilities are adequate for current critical station loads and are able to sustain the critical loads for the required time period. Consider installing additional battery capacity, diesel generators at major transmission and generation stations.	Hydro One Operating Restoration Working Group (Rec. 13)	Current standards/designs are based on industry standards (IEEE) and meet NPCC A3 criteria. These standard/designs need to be reviewed. In particular, transmission station AC/DC station service and Backup Power strategies, functional requirements and design standards need to be developed for each station class consistent with Transmission System Code and Market Rule requirements. The need for backup generation should be considered in establishing the functional requirements. The critical station loading and/or their connections within the station have changed over the years. The AC/DC auxiliary operating diagrams were not always updated and provided to a central depository to reflect these changes. Site visits are required to verify the current critical station loading and the AC/DC auxiliary operating diagrams. As this effort is very labour intensive a strategy needs to be established to ensure key stations are identified and assessed in a timely fashion. Consideration should be given to identifying transformer stations on the OPSRP restoration paths as key stations. 1. Develop AC/DC Station Service and Backup Power strategies, functional requirements and design standards for transmission stations. 2. Implement the plan to respect the new design standards in accordance with the corporate work program prioritization process 3. Develop strategy and action plan to review the critical station loading at all stations.	☒Complete ☒Ongoing

			4. Implement plan to upgrade station service facilities to meet critical station loading as required 5. Update the AC/DC station auxiliary diagrams	
28	The power supply to remote local control monitors (HMIs) at remote sites should be reviewed to ensure they are connected to dc systems.	Hydro One Operating	During the August 14, 2003 blackout, SCADA control was lost for some sites. This loss required dispatching operators to the local sites to monitor and initiate control actions to facilitate system restoration. The local controller is intended to provide these capabilities. However, for some cases, it was found that some computerized local controller monitors were AC powered, and not powered from the station DC battery. As such, this prevented the use of the local controller for cases where AC station power was lost. New standard practices have been developed and enacted so that the local controller and its associated peripherals shall be DC powered to permit its operation during total loss of station AC supply. Remedial implementation has been factored into near future investment plans 2005-2009. Reference: Closure report for Blackout Item # 20 & # 28	☒Complete ☐Ongoing
29	Station Service transfer facilities at Middleport TS and Burlington TS should be investigated and modifications made as required.	Hydro One Operating	During the Blackout Restoration on August 14th, 2003 the station service at Middleport TS and Burlington TS failed to load when power system supply was restored to stations. Since the station service provides the necessary AC/DC power to station facilities, Operators were unable to operate power equipment at these sites. Stations staff were dispatched to reset the equipment at both locations, thus allowing restoration of power to station. During the post restoration investigations of the two sites, no component failures were discovered and no other current performance issues were noted. However, both these transfer schemes were known to be approaching end-of-life and planned replacement was within the Business Plan. It was recommended that the replacement of station service transfer scheme at Burlington TS and Middleport TS be given priority. A process is in place to identify and store useful decommissioned transfer schemes equipment at CMS as spares Reference: Closure Report for Blackout Item #29 The station service transfer scheme at Burlington TS was replaced in 2005. 1. Replace Middleport TS station service transfer schemes.	☒Complete ☐Ongoing
30	The requirements for functional testing of station batteries and AC/DC transfer schemes should be reviewed. Test procedures should be reviewed to ensure they meet the requirements and that any deficiencies identified during routine testing are	Hydro One Operating	During August 14, 2003 blackout event, the Station Service at Middleport TS and Burlington TS failed to load when power system supply was restored to the stations. Station Service transfer was not operating correctly. The requirements for functional testing of AC/DC transfer schemes and station batteries were reviewed.	☒Complete ☐Ongoing

	quickly rectified. SCADAs, backup diesel and all other critical systems as defined by NPCC Policy A7 and the OPSRP, should be verified and tested as per NPCC Policy A3 and OPSRP requirements. Market Participants should test back-up power supplies to assure full load capability and adequate power quality	Restoration Working Group (Rec. 13) Restoration Working Group (Rec. 16)	The current maintenance practices for batteries and chargers were revised to conform to NPCC functional testing requirements. The model work orders for batteries and chargers were updated in Passport to align with changes made to the work standard documents. Although there is a work specification from Investment Planning to perform routine maintenance on AC/DC transfer schemes, the work was managed manually outside the PMO (Preventive Maintenance Optimization) infrastructure. Work standard documents for AC/DC transfer schemes were developed and asset registries and maintenance work program were set up in Passport work management system. The new or revised maintenance practices for batteries, chargers and AC/DC transfer schemes took effect in January 2005. Reference: Closure Report for Blackout Item # 30	
31	The required time period for diesels to be able to maintain critical loads at each location should be specified. Fuel supply should be maintained for all diesels such that backup power capability can sustain the critical loads for the required time period. The IMO and all market participants should review on-site fuel requirements including provision for the possibility of delays in obtaining re-supply.	Hydro One Operating Restoration Working Group (Rec. 17)	At the OGCC, for maximum site load running, the duration capability of the diesels with full tanks is greater than 200 hours. At the future Ontario Grid Backup Centre, for maximum site load running, the duration capability of the diesels with full tanks is 36 hours. Hydro One has fuel supply contracts with suppliers for re-fuelling of both sites. Procedures are in place to monitor the fuel levels in the tanks and to order additional fuel when the fuel levels are at about three-quarters full. The required time period for diesels to be able to maintain critical loads at other locations will be assessed a part of item # 27 which will review the backup power capability at all stations to ensure the facilities are adequate for current critical station loads	☒Complete ☐Ongoing
32	Procedures for routine functional testing of diesels supplying backup power capability at stations should be reviewed to strengthen the requirements for the tests and for immediate action to resolve any observed deficiencies. These tests should include the automatic failover systems to test start up on loss of AC. SCADAs, backup diesel and all other critical systems as defined by NPCC Policy A7 and the OPSRP, should be verified and tested as per NPCC Policy A3 and OPSRP requirements. Market Participants should test back-up power supplies to assure full load capability and adequate power quality	Hydro One Operating Restoration Working Group (Rec. 13) Restoration Working Group (Rec. 16)	Blackout event on August 14, 2003 had revealed some deficiencies relating to the operation of backup diesel generators at a few substations. Initial investigation had identified the need to review the current maintenance practice and functional testing requirements. Functional testing as defined in NPCC A-3 document was reviewed. A maintenance work standard document for backup generators defining all inspection, maintenance and functional testing requirements at substation and telecommunication site has been developed and issued. A list of backup generators has been compiled and will be loaded into the Passport work management system together with model work orders and maintenance work programs information. All maintenance work and functional testing will be tracked by the work management system effective January 2005. The revised maintenance practices for backup generators in substation and telecommunication site took effect in January 2005.	☒Complete ☒Ongoing

			Reference: Closure Report for Blackout Item # 32 At the OGCC in Barrie and at the Richview Back Up CC weekly inspections of each diesel generator are conducted. Monthly no-load tests and an annual power loss simulation are conducted for each diesel generator. The monthly and annual tests meet NPCC/NERC requirements.	
33	The policy for the operation of PSRs should be reviewed and criteria established for the selection of stations and equipment within the stations at which PSR facilities should be located. The location of PSRs and a list of all breakers capable of paralleling should be clearly documented and identified to all stakeholders. Review the ability of syncro-check relays at key locations to be operated manually.	Hydro One Operating Restoration Working Group (Rec. 13)	During the process of converting Hydro One transformer stations to remote SCADA control, it was necessary to provide Operators with a facility to connect separate sections of the power system together remotely. Two generations of synchronizing devices were developed with the second being PSR's. This in itself drove the criteria for the selection of stations and equipment within the stations at which PSR facilities should be located. As a go forward criteria all breakers requiring synchronizing duty capability will also require PSR capability. The PSR locations have been identified but further work is required to identify the specific breakers at these locations. The August 14, 2003 blackout resulted in identifying a gap in the lack of readily available information to determine which breakers can safely be used for synchronizing islands. An investigation has been initiated to identify the installed breakers rated for synchronizing duty. Reference: Closure Report for Blackout Item #33 1. Identify the specific station breakers supervised by PSRs 2. Identify the installed breakers rated for synchronizing duty 3. Review PSDB tracking mechanism for breaker characteristics and implement change control process 4. Review present synchro-check methodology of closing using PSRs and assess alternatives for the future.	☒Complete ☐Ongoing
34	Power system auxiliary equipment failures should be investigated and corrective action taken as appropriate.	Hydro One Operating	Several power system auxiliaries did not perform as expected during the system blackout of August 14th, 2003. Diesel generators, station service transfer schemes, batteries, remote terminal units (RTUs) and programmable synchrocheck relays (PSR) have significant roles in the system restoration process. The failure of auxiliary equipment during the blackout was isolated to a very small percentage of the assets. Those failures were a result of end-of-life failure, delays in equipment commissioning/turnover/repair, absence of a	☒Complete ☐Ongoing

			preventative maintenance program in some cases and inappropriate connection of critical equipment to non-secure supplies. The findings of this investigation are supplemented by the detailed investigations documented in Closure Reports for items 29 to 33 inclusive. Recommendations have been identified and implementation is underway with completion of all activities expected by the end of 2005. Reference: Closure Report for Blackout Item # 34 1. Review the alarm practices for inverters and UPSs with NOD. 2. Develop and implement a process to achieve 100 % compliance with the requirement to report equipment failures via the Defect Reporting System for resolution 3. Demonstrated 100 % compliance with the requirement to report equipment failures via the Defect Reporting System for resolution.	
35	The Networks Operating Division should provide a response to each Customer who provided comments on specific operating issues that transpired during the restoration phase. This response should indicate how any specific concerns, as expressed by the customer, are being addressed.	Hydro One Operating	A generic letter was sent to each of the 180 customers originally solicited for feedback. This letter addressed the key themes of the feedback received and provided explanation and/or Hydro One's solutions as appropriate. In addition a detailed response was provided in writing to each Customer who provided comments on specific operating issues that transpired during the Blackout. The response addressed how their specific concerns are being dealt with.	☒Complete ☐Ongoing
36	Communication linkages at the management level should be documented and utilized during system disturbances to meet the information needs of the various organizations without impacting on operating staff within these organizations In order to enhance their ability to communicate and collaborate through emergency situations, all Restoration Plan Participants are encouraged to further develop their network of contacts with neighboring Restoration Plan Participants.	Hydro One Operating Restoration Working Group (Rec. 20)	During the blackout management communication contacts were not readily available between transmitters and LDCs to determine the source of supply to critical and/or priority loads. In another event similar to the August 14, 2003 Blackout Hydro One should be prepared to communicate directly with the Local Distribution Companies (LDC) Emergency Operations Centers, assuming they are activated, to facilitate priority restoration and or implement exclusions for load shedding purposes. Reference: Closure Report for Blackout Item #36 The LDCs were requested to provide their EOCs point of contact and phone numbers in the first quarter 2005. Only a few LDCs responded to the request and many of those provided only their normal contacts, which are already on file. The Blackout Steering Committee concluded that there was little likelihood of success in obtaining this contact information through this mechanism. The Committee resolved that the EOC contact information should be included as a requirement in Connection Agreement, Schedule D and obtained through the next update.	☒Complete ☐Ongoing

			1. Include the requirement for the LDCs to provide points of contact and phone numbers for their Emergency Operating Centres in Schedule D of the Connection Agreements. 2. Obtain the LDCs' points of contact and phone numbers for their Emergency Operating Centres through the regular updates to the Connection Agreements, Schedule D. 3. Modify the responsibilities of the ICC-T Prioritization Manager within the Emergency Preparedness Implementing Procedure and update the T&D Emergency Response Plan.	
37	EPTF concern re winter blackout: operating constraints/difficulties under winter conditions on Hydro One GIS, SF6, oil and air power system equipment	N/A	Investigations by Hydro One the IMO and other agencies noted that the blackout occurred without warning, under no adverse weather conditions and during normal business hours when many staff were immediately available. Hydro One initiated an investigation on the consequences of a possible winter Blackout scenario to determine the expected performance of our assets under these conditions. Subsequently, the Emergency Preparedness Task Force (EPTF) constituted the Cold Weather Scenario Working Group to assess the implications of a blackout during cold weather. The concern was that blackout under cold weather conditions could hinder rapid restoration of the IMO Controlled Grid, and therefore create major health and safety risks to the people of Ontario. This assessment was to be grounded based upon investigation of equipment and staff impacts, and the potential to put in place effective mitigation measures to ensure restoration. Hydro One is a member of the EPTF and the Cold Weather Working Group. The results of Hydro One internal assessment were provided to Hydro One Management and to the Cold Weather Scenario Working Group. The Blackout Steering Committee monitored the progress of this assessment and reviewed the outcomes. However, this item was outside the purview of the Committee as this item was not in response to a recommendation from any of the Blackout Investigations. Further work is being conducted by the responsible Hydro One organizational units and by the IESO through the EPTF and the Cold Weather Scenario WG.	☐ Complete ☒ Ongoing
38	Restoration Plan Participants should document and implement controls to limit control room or crisis centre access to essential staff only.	Restoration Working Group (Rec. 7)	Documentation and controls to limit access to the OGCC are in place. • Access to the OGCC site is regulated by NMI-3003 "Security and Site Access Control for the Ontario Grid Control Centre". • Access to the OGCC Control Room is regulated by NMI-1104 "Access to the Ontario Grid Control Centre Control Room". Under this instruction access to the Control Room is at the discretion of the Dispatch Shift Control Supervisor (SCS). • The ICC-T is initiated and controlled according to the Emergency Preparedness Plan (EPP). • The ICC-T is within the OGCC Office Building and is protected by the	☒ Complete ☐ Ongoing

			same security measures as the rest of the OGCC and regulated by NMI-3003. Access to the ICC-T can be controlled by Access Card if selected by Security.	
39	Correct the direct causes of the August 14, 2003 blackout. Specifically; Part E. Corrective actions to be completed by other parties by June 30, 2004. Determine whether adequate facilities, procedures, tools and training exist to ensure reliable operations in 2004. Specifically, ensure compliance with actions requested of First Energy and MISO.	US-Canada TF (Rec. 15)	NERC conducted a reliability readiness audit of the IESO as a Control Area in May 2004. Readiness audits, as a Reliability Coordinator, will be conducted in a three-year cycle with the next audit of the IESO being in 2006. A Control Area audit commended the IESO for its tools, facilities, procedures and training. IESO completed and submitted to NERC a questionnaire and templates on operational readiness for Summer 2004.	☒Complete ☐Ongoing
40	Beginning with the effective date of January 1, 2004, each transmission owner will submit an annual report of all vegetation-related high voltage line trips to its respective reliability region Establish enforceable standards for maintenance of electrical clearances in right-of-way areas. C. Requirement to Report Outages Due to Ground Faults in right-of-way Areas NERC should require each transmission owner/operator to submit quarterly reports on all ground-fault line trips on lines 115 kV and higher beginning March 31, 2004	NERC (Rec. 4b) US-Canada TF (Rec. 16)	Hydro One reported no instances for the first report period. IESO submitted the first report to NPCC in mid July 2004. Hydro One will report instances to the IESO monthly by exception. The IESO will submit a report incorporating the results from all transmitters to NPCC monthly by exception Ground-fault line trips will be reported only on 115 kV circuits that are BES impactive or where Local Area reliability is a concern.	☐Complete ☒Ongoing
41	Each bulk electric transmission owner shall make its vegetation management procedure, and documentation of work completed, available for review and verification upon request by the applicable regional reliability council, NERC, or applicable federal, state or provincial regulatory agency. Establish enforceable standards for maintenance of electrical clearances in right-of-way areas. B. Right of Way Management BES operator to publish annually a proposed right-of way management plan on its public website, and a report on its right-of way management activities for the previous year.	NERC (Rec. 4c) US-Canada TF (Rec 16)	Hydro One has documented vegetation management procedures and processes in place whereby work program and accomplishment are documented and available. The documentation includes vegetation management monthly progress report by Provincial Lines and Forestry, which provides a summary of cost and percentage of accomplishment for each work program. Detailed ROW condition patrol reports and a summary report are also available. A year-end accomplishment report is produced to show the accomplishment status. Hydro One is actively involved with the IESO in the development of a vegetation management standard. A NERC draft standard for Vegetation Management has been issued for comments. The appropriate lines of business at Hydro One will continue to participate in this development during 2005.	☒Complete ☐Ongoing

42	NERC and each regional reliability council shall establish a program for documenting completion of recommendations resulting form the August 14 blackout and other historical outages, as well as NERC and regional reports on violations of reliability standards, results of compliance audits, and lessons learned from system disturbances. Regions shall report quarterly to NERC on the status of follow-up actions to address recommendations, lessons learned, and areas noted for improvements. Track implementation of recommended actions to improve reliability	NERC (Rec 5a) US - Canada TF (Rec 5)	Blackout investigations conducted by the IESO, Hydro One, and the Restoration Working Group made a number of recommendations that needed to be addressed to improve Hydro One and Ontario's preparedness for future such events. Additionally, recommendations arising from The US-Canada Task Force and NERC that pertain to Hydro One needed to be addressed. The Hydro One Blackout Steering Committee was formed to address the findings and recommendations. The Committee • established a tracking mechanism for monitoring the activities in support of the Committee • Assess if any recommendations are being addressed by other means (e.g. EPTF) & reference accordingly • Determine actions required to address the recommendations • Monitor progress in fulfilling the actions via the tracking mechanism • Provide a summary detailing the resolution of each recommendation and identifying any actions required going forward. The outcome of the Committee's work was provided to the Senior Management and to outside parties, where appropriate, in support of the overall industry effort to document the outcome of the various actions in response to the finding and recommendations from the various investigations. 1. Monitor and confirm the completion of the identified future actions	☒Complete ☐Ongoing
43	All transmission owners shall, no later that September 30, 2004, evaluate the zone 3 relay settings on all transmission lines operating at 230 kV and above for the purpose of verifying that each zone 3 relay is not set to trip on load under extreme emergency conditions. In each case that a zone 3 relay is set so as to trip on load under extreme conditions, the transmission operator shall reset, upgrade, replace, or otherwise mitigate the overreach of those relays as soon as possible and on a priority basis, but not later that December 31, 2005, Upon completing analysis of its application of zone 3 relays, each transmission owner may no later that December 31, 2004 submit justification to NERC for applying zone 3 relays outside of the recommended parameters. Make more effective and wider use of system protection measures. - Broadens the NERC recommendation on evaluation of Zone 3 relays to include operationally significant 115 kV and 138 kV lines.	NERC (Rec 8a) US-Canada TF (Item 21)	Hydro One does not employ Zone 3 stepped time distance relays on their 500 kV and 230 kV systems. This was formally communicated to NPCC on August 19, 2004. In a second investigative stage NERC will include some critical 115 kV circuits in response to the recommendation by the US – Canada Task Force and other zones of distance protection (Zones 1 and 2). The schedule for the second stage has not been discussed as of January 31, 2005 but the second stage is not expected to start until late 2005 at the earliest. At the moment the focus of the investigation is on the response and exceptions/mitigation of distance zone 3 elements identified in 500 kV and 230 kV power systems that do not meet the new loadability requirements. Hydro One will evaluate any zone 3-relay settings on identified critical 115 kV circuits and any other zones of distance protection to meet the schedule for the second stage when established. 1. Evaluate other zones of distance protection (Zones 1 and 2) 2. Evaluate any zone 3 relay settings on operationally significant 115 kV circuits 3. Modify relay settings as required by the evaluations	☒Complete ☐Ongoing

44	Facilities owners shall, in accordance with regional criteria, upgrade existing dynamic recorders to include GPS time synchronization and, as necessary, install additional dynamic recorders. Require use of time-synchronized data recorders A. FERC and appropriate authorities in Canada should require the use of data recorders synchronized by signal from the Global Positioning System (GPS) on all categories of facilities whose data may be needed to investigate future system disturbances. B. NERC, reliability coordinators, control areas and transmission owners should determine where high speed recorders are needed on the system , and ensure that they are installed by December 31, 2004 Expand the use of PSDRs at strategic locations throughout the province. They were found to be invaluable in providing system information over a long time period.	NERC (Rec. 12b) US-Canada TF (Item 28) Hydro One Protection and Control	At the time of the blackout, on August 14, 2003, Hydro One had twelve PSDRs in service, nine at 230 kV stations and three at 500 kV stations. These PSDRs were programmed to record various power system quantities every cycle and were time synchronized through a GPS signal. The PSDR records have proven to be invaluable in the analysis of the events that caused the collapse of the Ontario system. The consensus of Hydro One's team that reviewed the PSDR records from the blackout was that in some areas in Ontario the coverage provided by the existing PSDRs was not sufficient and that additional PSDRs were needed for better coverage. As a result, a decision has been made to install six additional PSDRs to be located at Bruce A 500, Middleport 500, Cherrywood 500, Lennox 500, Hanmer 500, and Lakehead 230. The project has been approved and the new PSDRs are expected to be in service by June 2006. Hydro One NMS and IESO EMS are linked to the same GPS source. However, there will still be a time skew between data received. 1. Install the six additional PSDRs	☐Complete ☒Ongoing
45	Install satellite clocks at ALL terminal stations and ensure all IEDs, DFRs and SERs are connected. Ensure if clocks are already present at the stations, they are connected and functioning. Consider deploying a maintenance program on satellite clocks.	Hydro One Protection and Control	Hydro One and Work Specification documents need to be consolidated and rolled out. Stations and Telecom Programs (S&TP) have included funding for this work starting in 2005. 1. Consolidate Hydro One and Work Specification documents and roll out.	☒Complete ☐Ongoing
46	Prepare a procedure for gathering data from digital devices in order to standardize this process.	Hydro One Protection and Control	A market survey was conducted for an off-the-shelf software package. Plans have been identified to conduct a field trial. 1. Conduct a field trial.	☒Complete ☐Ongoing
47	Ensure all SER databases are synchronized between Head Office and the units in the field. Put a change control system in place to provide a mechanism to prevent changes being made to the units in the field without corresponding changes to the Head Office database.	Hydro One Protection and Control	This is included with the implementation of the new PCMIS P&C data system and funded by the O&M program. 1. Populate PCMIS with data.	☒Complete ☐Ongoing
48	Ensure SER labeling is standard from station to station as well as application of SER points in protection systems. Breaker open indication application varies from station to station or in some cases not used at all (Essa, Hawthorne). In some cases breaker indication may be off a pallet, in other	Hydro One Protection and Control	This work is included in the 2005 migration of SER configuration into the PCMIS application. 1. Populate PCMIS with data.	☒Complete ☐Ongoing

	cases it is off a pallet multiplier.			
49	Consider deploying a maintenance program on SERs. In some cases points were not working or had incorrect polarity. In other cases the SERs were not working at all.	Hydro One Protection and Control	Remote interrogation needs to be schedule. The PM work specifications need to be revised 1. Setup remote software to call SER sites. 2. Revise PM work specifications	☒Complete ☐Ongoing
50	Protection IEDs provided some redundant coverage to DFRs in terms of oscillography. The DFRs provided useful information at times when the IEDs did not capture events at all or when these IEDs provided somewhat questionable information. Maintain use of DFRs throughout the province until a comfort level with the information provided by the IEDs is obtained.	Hydro One Protection and Control	DFRs will continue to be used throughout the Province until declared otherwise.	☒Complete ☐Ongoing
51	Expand coverage of DFRs to include all lines at a station.	Hydro One Protection and Control	DFR coverage will be reviewed and included in a program where required. 1. Incorporate into the sustainment program.	☐Complete ☒Ongoing
52	Review scaling issues of DFRs noted above that had scaling problems.	Hydro One Protection and Control	Include scale factor verification in the PM program. 1. Revise work specification for PM	☒Complete ☐Ongoing
53	Investigate some of the problems surrounding the use of Harris RTUs for SER functionality to determine their performance during high traffic times.	Hydro One Protection and Control	The problems were identified as RTU configuration, firmware and PC logger problems. The RTU configuration problems have been rectified. PC logger issues are to be addressed by the latest standard implementation. 1. Address PC logger issues through implementation of latest standard	☐Complete ☒Ongoing
54	Obtain and use software to provide the ability to play back fault events from an IED to verify correct relay operation. CAPE currently has the ability to do this but the database of all system relays is incomplete.	Hydro One Protection and Control	The need to populate the CAPE database with protection system models was reviewed. It was concluded that it is not necessary to do so at this time, since HON does not use backup protections for its bulk 230 & 500kV system, which require co-ordination studies. The need for a standard interface to read and manipulate oscillograph records form DFRs and IEDs, was reviewed. It was concluded that such a tool would be beneficial to improve efficiencies in conducting NOEAs. Stations and Telecom Programs has included in their plans the purchase of such a tool in 2005.	☒Complete ☐Ongoing
55	Obtain off the shelf software that will provide an analyst a standard interface to read and manipulate any oscillograph file from a DFR or an IED.	Hydro One Protection and Control	Stations and Telecom Programs has include in their plans the purchase of such a tool in 2005.	☒Complete ☐Ongoing

56	Ensure the master library of protection settings is current and up to date.	Hydro One Protection and Control	Plans were established to review, update and augment the relay database (descriptions and settings). The work has been awarded to Engineering and Construction Services.	☐ Complete ☒ In Progress
57	Consolidate data gathering systems. The Hathaway DFRs, although useful, utilize proprietary software that still runs in Concurrent DOS. This system is not able to connect to the Hydro One network LAN. Placing these files onto a central file server requires significant manual intervention. A similar situation exists with the G&W Dacsan SERs. This slows down the ability to provide timely information during major system disturbances. Investigate systems to automatically upload data to a central server.	Hydro One Protection and Control	Sustainment programs have been established and are underway to integrate the data and replace the legacy devices.	☐ Complete ☒ In Progress
58	The most reliable and accurate data gathering systems after this event turned out to be P&C monitoring equipment located at various stations. Ensure such monitoring equipment receives priority in the future.	Hydro One Protection and Control	A new accomplishment will be added for the 2007 PM program for P&C. This will be the periodic checking of monitoring equipment. This will be identified in the 2006 Proof of Concept 1. Modify the PM document to include the accomplishment.	☐ Complete ☒ Ongoing
59	Develop a Standard to ensure all SEL 2030's or similar devices are set-up to gather data from IEDs connected to them. This will ensure all IED records are archived by a second device.	Hydro One Protection and Control	A pilot project is under way to automatically extract protection events to a centrally located server located at Richview. The 35 terminal stations are in the plan for implementation over the next five years.	☒ Complete ☒ Ongoing
60	Standardize trigger settings on relays to ensure both A and B protections trigger in the same fashion for events that occur on the protected circuit.	Hydro One Protection and Control	Engineering and Construction Services have been notified to standardize protection event trigger settings on relays, to ensure both A and B protections trigger in the same fashion for events that occur on the protected circuit.	☒ Complete ☐ Ongoing
61	Verify and standardize current circuits into DFRs to ensure polarity is correct and standard from station to station.	Hydro One Protection and Control	A new accomplishment will be added for the 2007 PM program for Protection and Control. This will be the periodic checking of monitoring equipment. This will be identified in the 2006 Proof of Concept. 1. Modify the PM document to include the accomplishment.	☐ Complete ☒ Ongoing
62	Investigate frequency sensitivity of all protection IEDs used by Hydro One. Consideration should be given to acceptable limits of correct operation in an environment with changing frequency conditions.	Hydro One Protection and Control	A review of protection IED type test requirements under black start contingency was conducted and documented. Future type tests will include some addition testing for such contingencies. Policies, Standards and Technical Studies will keep abreast of IEEE standard developments in this area.	☒ Complete ☐ Ongoing
63	Investigate practicality of employing power swing blocking capabilities of impedance based IEDs. In most cases this feature is available but in reality an accurate setting may be difficult to obtain. This may be only one of several solutions available to prevent line protections from operating on power swings.	Hydro One Protection and Control	Two technologies implemented in 2005 are the use of line differential protection and synchronizing phasor angle information to block distance protections.	☒ Complete ☐ Ongoing

64	Review breaker reclose settings for all circuits. One instance with L24A resulted in the reclose of a breaker at St. Lawrence (HL24) across a large angle since St. Lawrence was islanded at the time. This breaker was set for VP + T.	Hydro One Protection and Control	The breaker reclosure settings were reviewed, particularly on the five 230 kV circuits emanating from Beck GS towards Middleport and Burlington, in response to concerns expressed by the IESO. The investigation confirmed that the autoreclosure facilities on these circuits do not have synchro-check capability on all breakers. Furthermore, there are breakers with synchro-check facilities that have not been selected for use. Hydro One, with the approval of the IESO, implemented revised selections in 2005. In the longer term, Hydro One has established plans to provide additional autoreclosure facilities such that autoreclosure by synchro-check may be selected for all five circuits. These additional facilities are to be provided by end of 2006. 1. Install additional autoreclosure facilities on the five 230 kV circuits emanating from Beck GS towards Burlington and Middleport.	☒Complete ☐Ongoing
65	Reconnect remote access to all stations as soon as possible to stations that were previously disconnected as part of HODS Alert #0026. This was an order to disconnect remote access to 32 critical stations in the province for security reasons. Or Alternatively, provide a system that automatically collects the information.	Hydro One Protection and Control	Plans have been established to implement secure data extraction from all 35 terminal stations as a part of a five-year plan. These plans have been included in the corporate work program prioritization process.	☒Complete ☐Ongoing

School Energy Coalition (SEC) INTERROGATORY #3 List 1

Interrogatory

Ref: [Ex. A/7/2] With respect to Governance and Control:

a. P. 5. Please file a current copy of the Enterprise Application Replacement Strategy.

b. P. 8. Please advise how often projects are assessed for new and changing risks while they are underway. Please provide any statistics available on review frequency and changes resulting from those reviews. Please provide copies of the last six of those assessments.

c. P. 10. Please provide copies of the monthly control reports for May, 2010.

Response

a. Please see Attachment 1 entitled "Business Technology Roadmap".

b. Projects that are under way are reviewed monthly until completion. Risks that could impact upon deliverables, schedule or financial performance are identified during these monthly reviews. Please find copies of the last six assessments as Attachment 2

c. Please see the May 2010 report in Attachment 2

BUSINESS TECHNOLOGY ROADMAP



Business Technology Roadmap

in·no·vate: *to introduce something new; make changes in anything established.*

trans·form: *to alter or be altered radically in form and function.*

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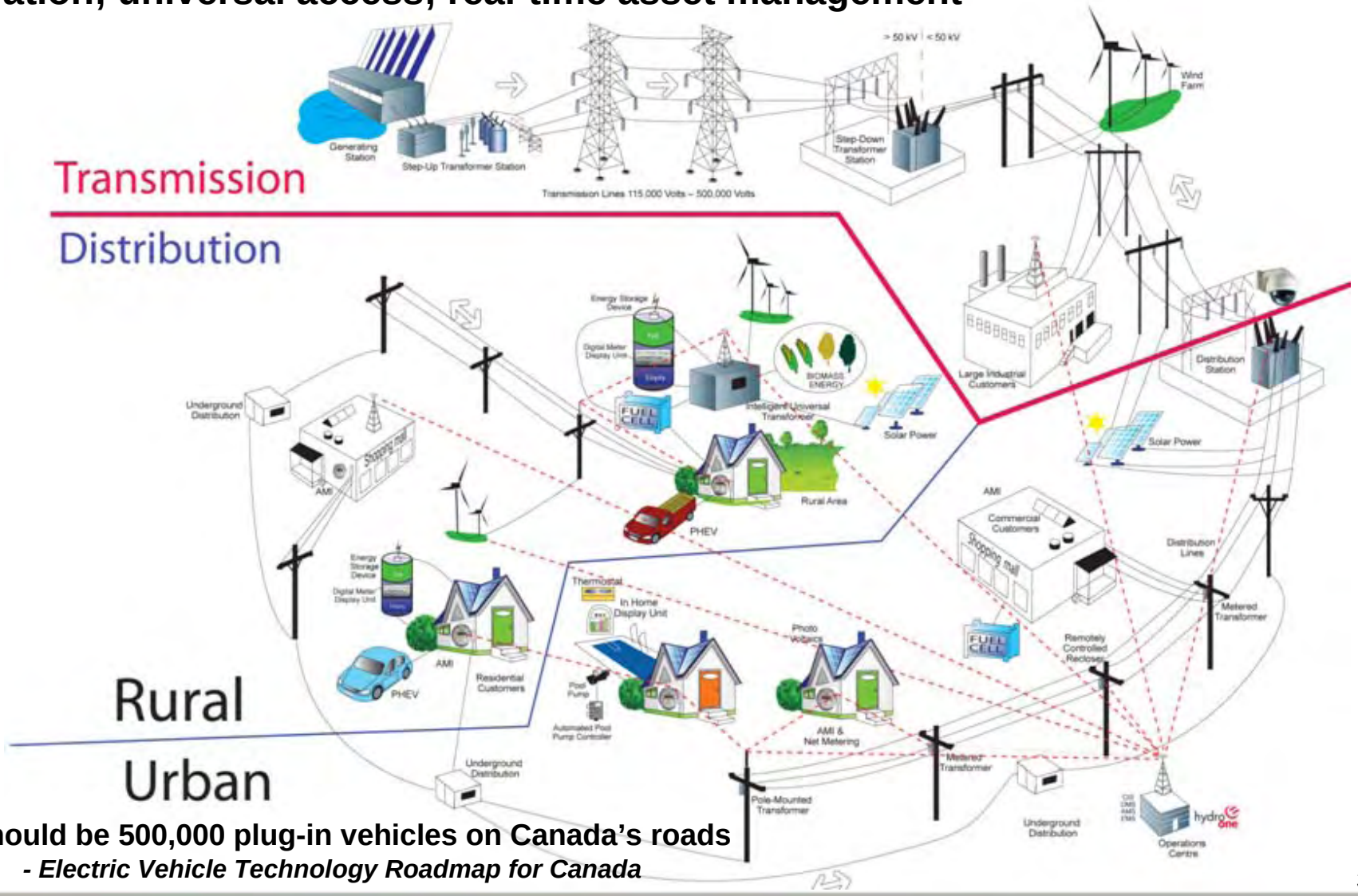
The Evolving Utility

Hydro One continues to innovate to improve its business capabilities.

	1980	2010	2014
Customer Service			
Demand Management			
Meter Reading			
Outage Management			
Asset Management Work Execution			
Power System Management			

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2015 and beyond. Pervasive: data networks; sensors & automation; information streaming; consumer technology; electric vehicles; distributed generation; universal access; real-time asset management



There should be 500,000 plug-in vehicles on Canada's roads by 2018. ***- Electric Vehicle Technology Roadmap for Canada***

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Other strategic and external factors impacting our Roadmap:

- Maximizing safety
- Productivity imperatives
- Demands from consumers
- Outsourcing contract re-tender by 2013
- Cyber security and customer privacy
- Pending deluge of data
- The solid information system foundation that now exists

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Renewing Ontario's Power Grid

People, process and technology aligned with the strategic plan.



HYDRO ONE STRATEGIC PLAN
2010 - 2014

Innovation & Leadership:
Renewing Ontario's Power Grid

Our mission and vision

We will be an innovative and trusted company delivering electricity safely, reliably, and efficiently to create value for our customers

Our Strategic Plan builds on the company's strong commitment to the Province of Ontario and is shaped by our Values. It lays out a set of clear objectives to position Hydro One to achieve its Mission and Vision.

MISSION AND VISION
We will be an innovative and trusted company delivering electricity safely, reliably, and efficiently to create value for our customers

VALUES
• Health and Safety • Stewardship • Excellence • Innovation

STRATEGIC OBJECTIVES
• Injury-Free • Satisfying our Customers • Continuous Innovation • Reliable Transmission and Distribution • Protecting the Environment • Employee Engagement • Shareholder Value • Productivity and Cost-Effectiveness

	Injury-Free	Satisfying Our Customers	Continous Innovation	Reliable Tx and Dx	Protecting the Environment	Employee Engagement	Shareholder Value	Productivity & Cost-Effectiveness
Target Business Capabilities								
Customer Service		✓	✓					
Asset Management	✓		✓	✓	✓		✓	
Demand Management	✓		✓	✓	✓		✓	✓
Metering	✓	✓	✓	✓			✓	✓
Work Execution	✓		✓	✓	✓		✓	✓
Power System Operations	✓	✓	✓	✓		✓	✓	✓
Power System Enhancement		✓	✓	✓			✓	
Transformational Technology								
Enterprise Applications		✓	✓	✓		✓	✓	✓
Universal Access		✓	✓	✓	✓	✓	✓	✓
Application Integration			✓	✓	✓	✓	✓	✓
Smart Meter	✓	✓	✓		✓		✓	✓
Smart Grid	✓	✓	✓	✓	✓	✓	✓	✓
IT and OT Convergence		✓	✓	✓		✓	✓	✓
Business Process Monitoring			✓			✓	✓	✓
Business Intelligence			✓	✓		✓	✓	✓
Advanced Data Networks	✓	✓	✓	✓	✓		✓	✓
Enterprise Content Management			✓			✓	✓	✓

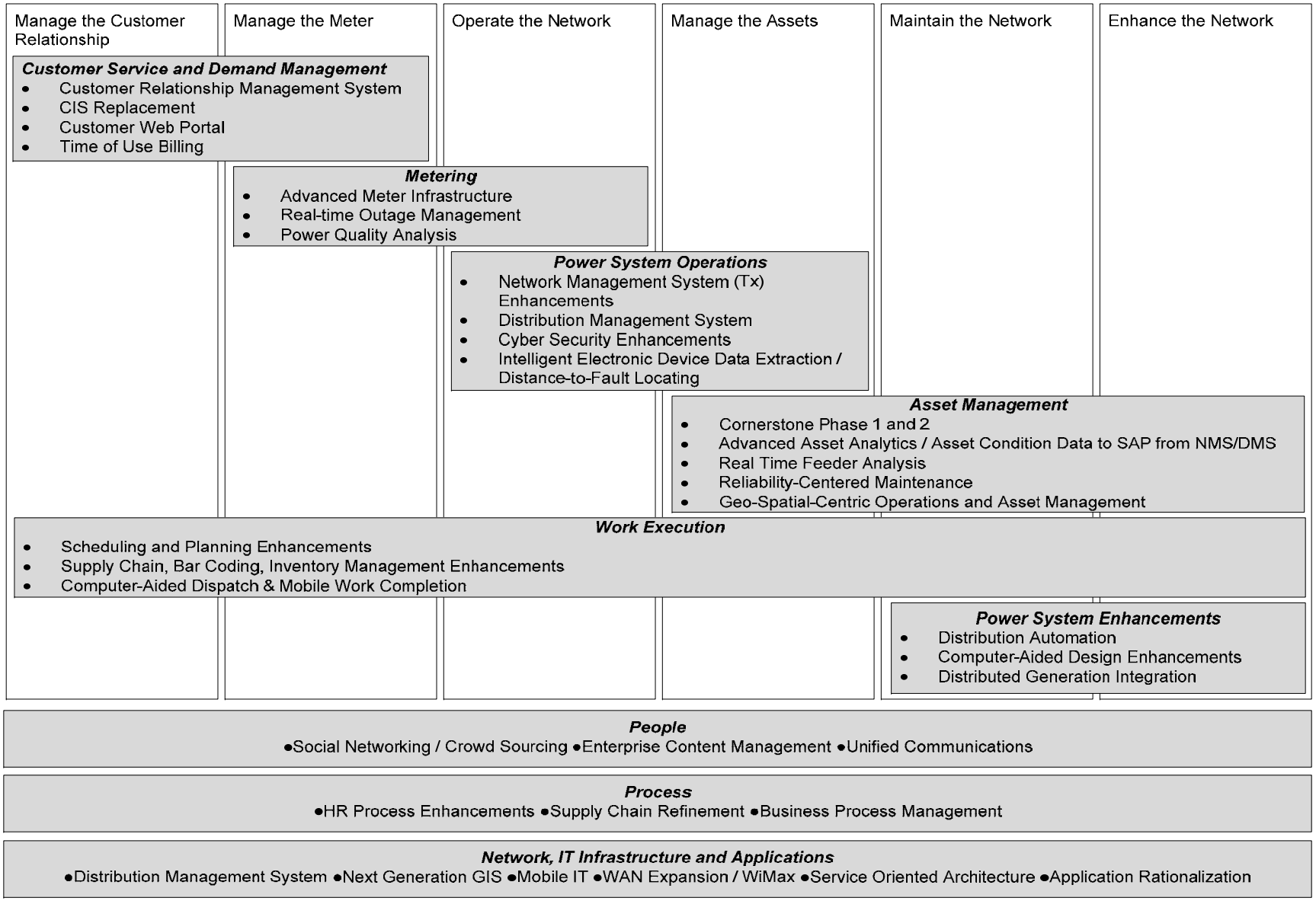
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Transformation Roadmap

	Focus on Core Business: Transmission and Distribution	***Innovation & Leadership: Renewing Ontario's Power Grid***	hydro one Future
Strategic Plan			
Mandate	Replace Legacy Technology, Tx Reliability and Support Deregulation	Continuous Innovation, Foundational Technology, Application Integration and Universal Access	Strategic Convergence, Interoperability of IT & OT to Deliver Core Business Capabilities
Programs and Projects	• Cornerstone Phase 1 Asset Management Work Management Supply Chain • Cornerstone Phase 2 Human Resources Business Intelligence Finance Investment Management Pay Operations • Distributed Generation • Demand Management Pilots • Advanced Meter Reading • Outage Dispatch Centralization • Tx SCADA • Centralized Customer Care Centres • Enterprise Resource Planning (ERP)	• Cyber Security • Advanced Asset Analytics / IED Data to SAP • Scheduling and Planning • Social Network / Crowd Source • HR Process Enhancements • Next Generation GIS • Mobile IT • Ongoing Smart Meter AMI Head-End • Launch of Smart Grid • eCustomer Upgrade • WAN Expansion • Bar Coding & Inventory Mgmt • Computer-Aided Dispatch • Service Oriented Architecture • Application and Database Rationalization • Supply Chain Enhancements • Customer Relationship Management • Business Process Improvement	• NMS Enhancements • Provincial WiMax Network • Real Time Outage Management • Distribution Automation Dx SCADA • Smart Billing (TOU) • Reliability-Centered Maintenance • Supply Chain Refinement • Ongoing Smart Grid • Real Time Feeder Analysis • Distance to Fault Locating • Distribution Management System • Geo-Spatial-Centric Operations and Asset Mgmt • CIS Replacement • Enterprise Content Management • Unified Communications • Applications Rationalized • 3D Computer-Aided Design
Hydro One Capability	Asset and Work Management, Next Generation Back Office, Customer and Vendor Management Capabilities, Tx Automation	Universal Access to Our Secure Infrastructure, Application Integration using Service Architecture, Framework to Deliver Core Business	Smart Meter, Smart Grid, Agile and Adaptable Enterprise
Timeline	***Present Day***	***Near Term***	***Longer Term***

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Mapping Projects to Business Capabilities



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BI/BW-enabled Business Process Management and Performance Management

Asset Stewardship

Reliability-Centered Maintenance

Advanced Asset Analytics

Business/Investment Planning

Supply Chain Optimization

Work Management Optimization

Real-Time Operations

Real-time Outage Mgmt

Distance-to-Fault-Locating

Dx Automation

DG Integration

Real-time Feeder Analysis

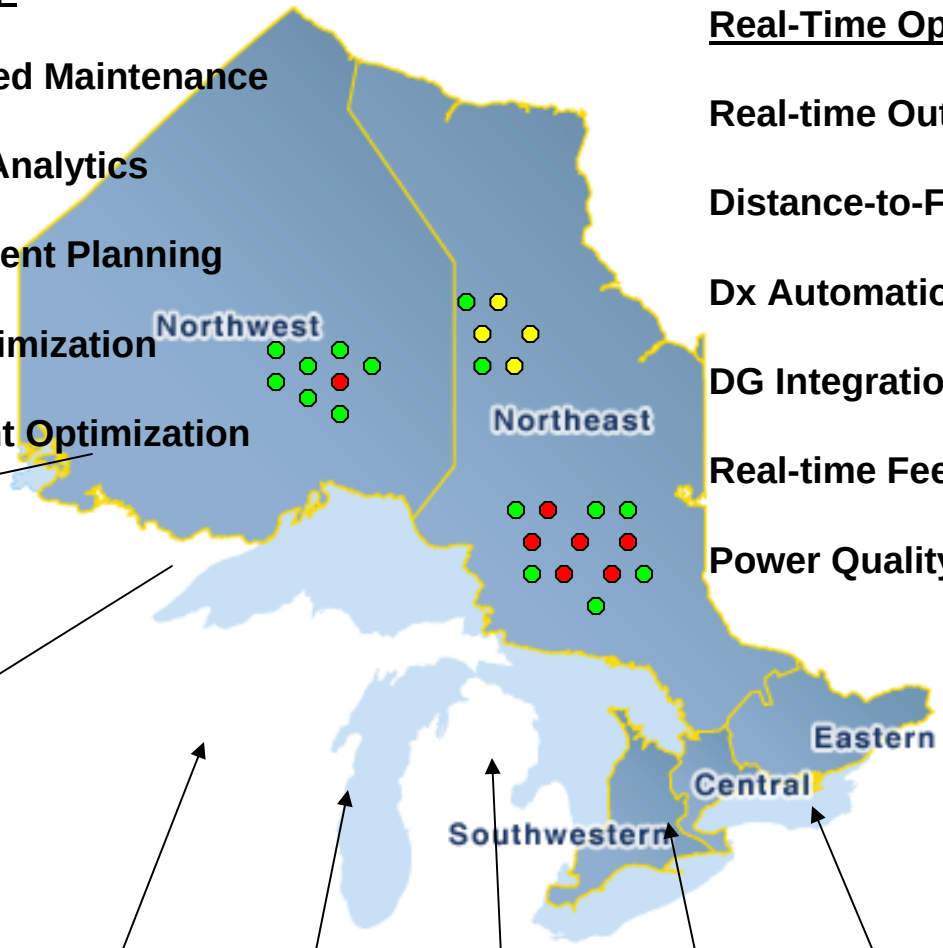
Power Quality Analysis

SAP

CIS/IVR/CRM

CAD
(computer aided dispatch)

Mobile Apps



DMS

GIS

NMS

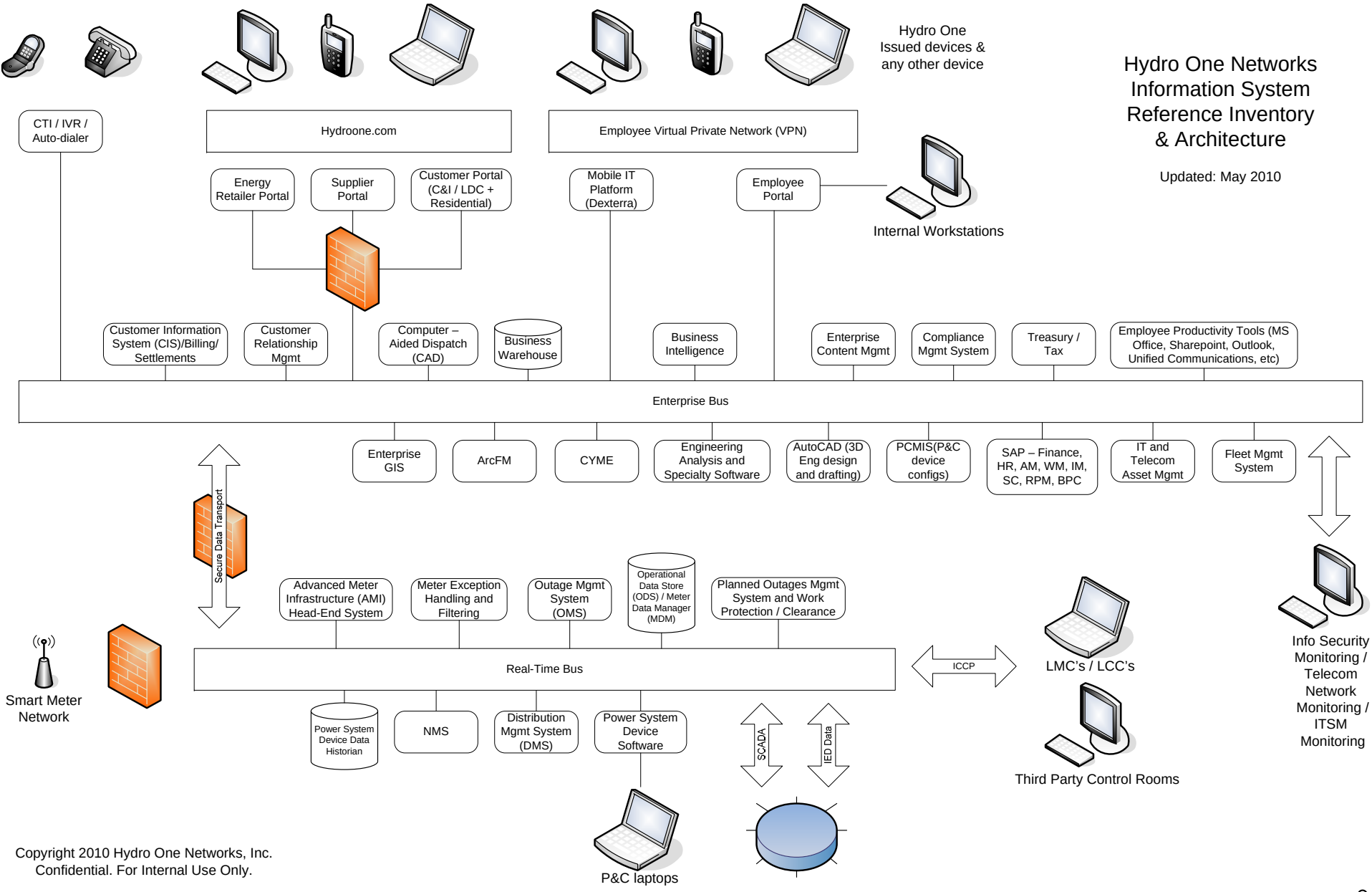
OMS

AMI
Head-end

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Hydro One Networks Information System Reference Inventory & Architecture

Updated: May 2010



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Application Rationalization

- Cornerstone and commercial software maturation provide the jumping off point for future rationalization
- Business applications, productivity tools and specialty software programs equate to over 1600 software objects in our environment – this was borne out of past necessity and is typical of companies of our size
- Simplifying the application landscape will:
  - Reduce IT total cost of ownership
  - Better position us for the next outsourcing contract
  - Drive enterprise productivity with less sources to be accessed to do work

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Hydro One's IS strategy is to rationalize applications and transform business processes through the implementation of commercial off the shelf (COTS) applications

Business Benefits:

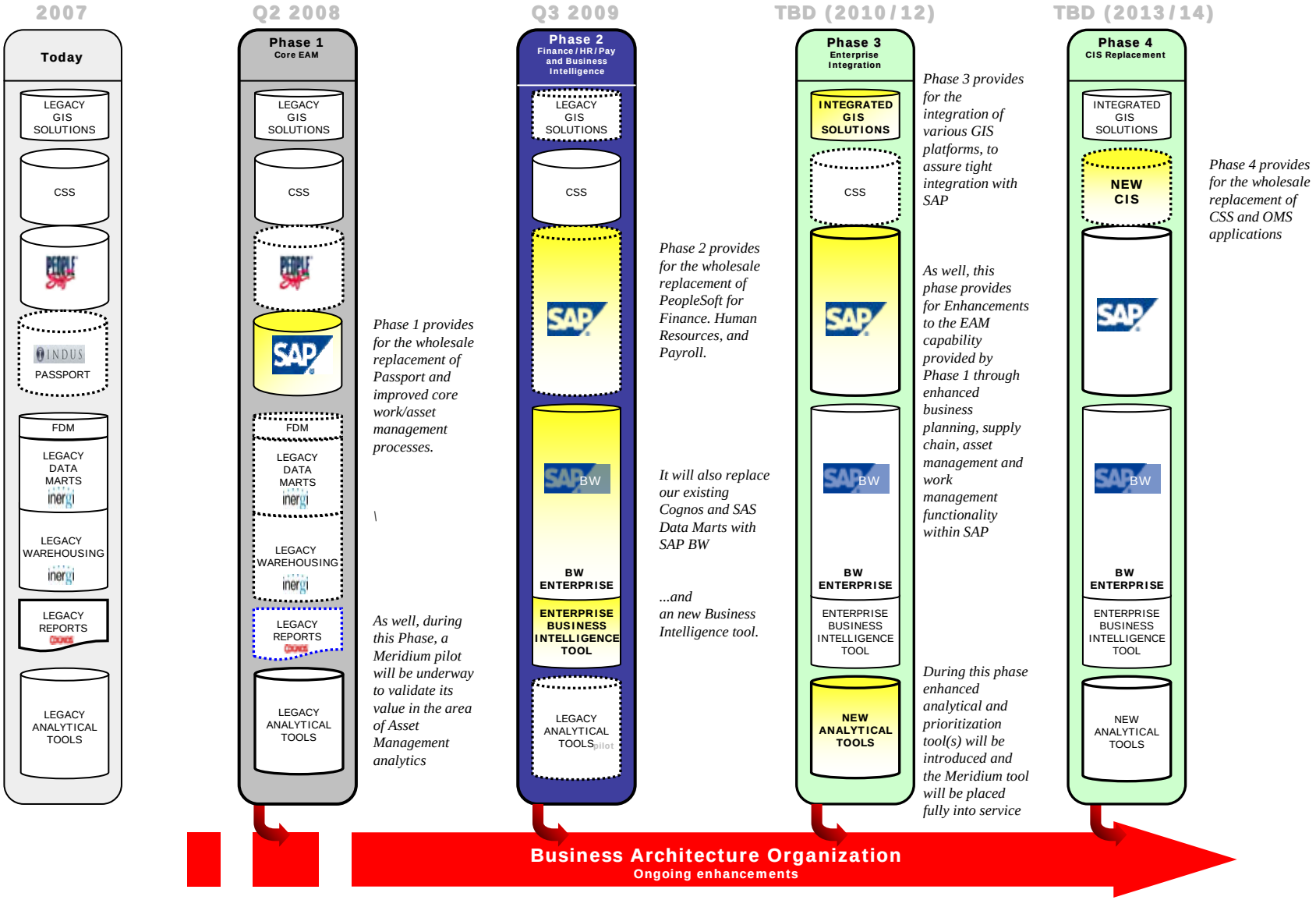
- Addresses **business risk** associated with unsupported custom solutions
- Aligns with **business vision** for increased reliability, improved decision-making, higher customer satisfaction, and greater cost effectiveness
- Creates a **scalable** application environment for satisfying both current and anticipated operating requirements
- A streamlined application portfolio is simpler to maintain and integrate, enabling **greater reliability** across the enterprise
- Enables adoption of **standard industry processes and practices** where appropriate to balance cost effectiveness and business performance
- Supports **efficient integration of data** to enable effective business process operation and decision making
- Leverages a **standard industry process model** and application capabilities, maintained, enhanced and supported by key vendors
- Leads to a **lower long-run IT cost** structure by leveraging off-the-shelf, common applications on common infrastructure

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Enterprise System Replacement and Enhancement Program

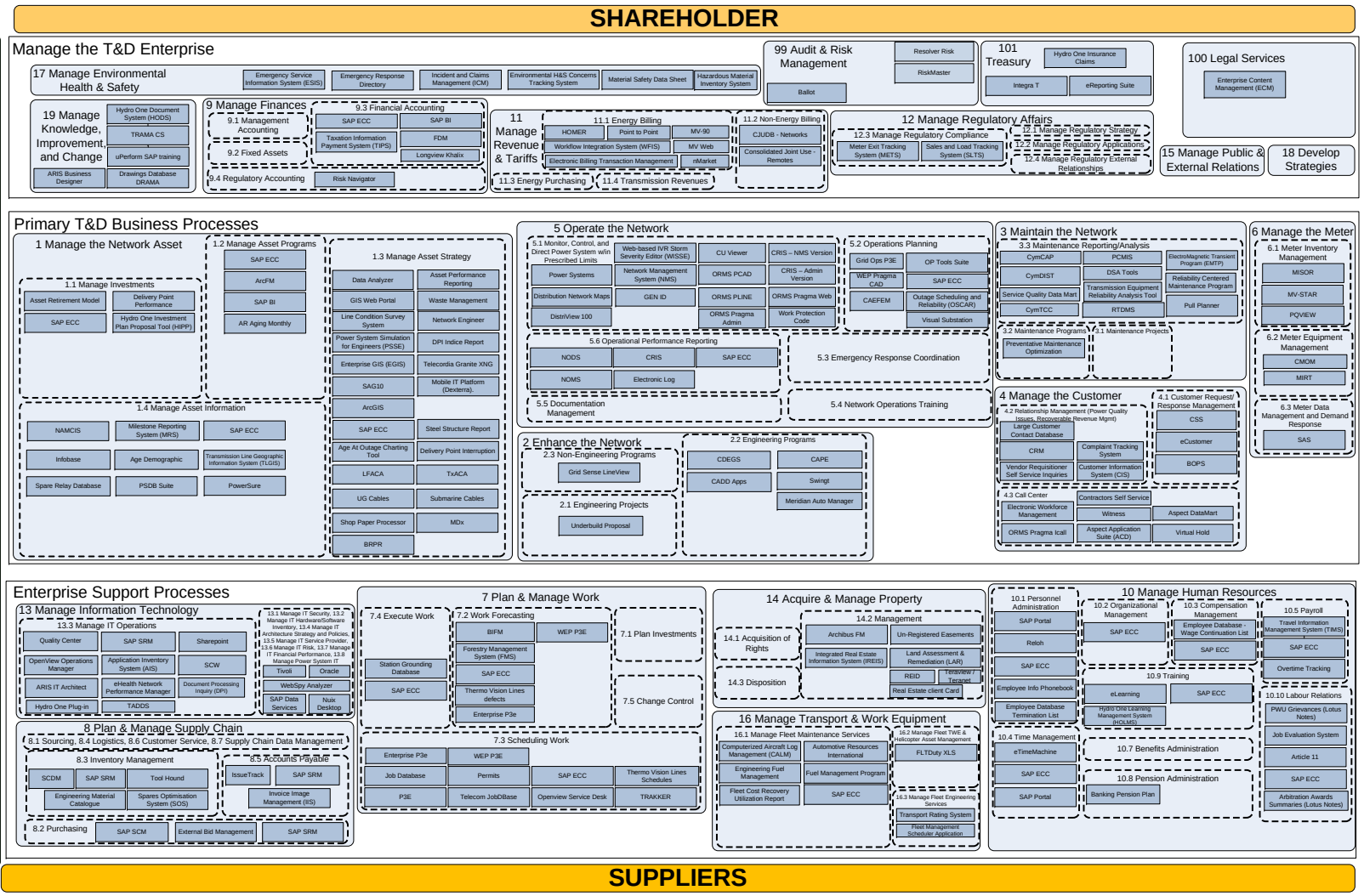
Denotes new for this Phase

Denotes targeted change in next phase



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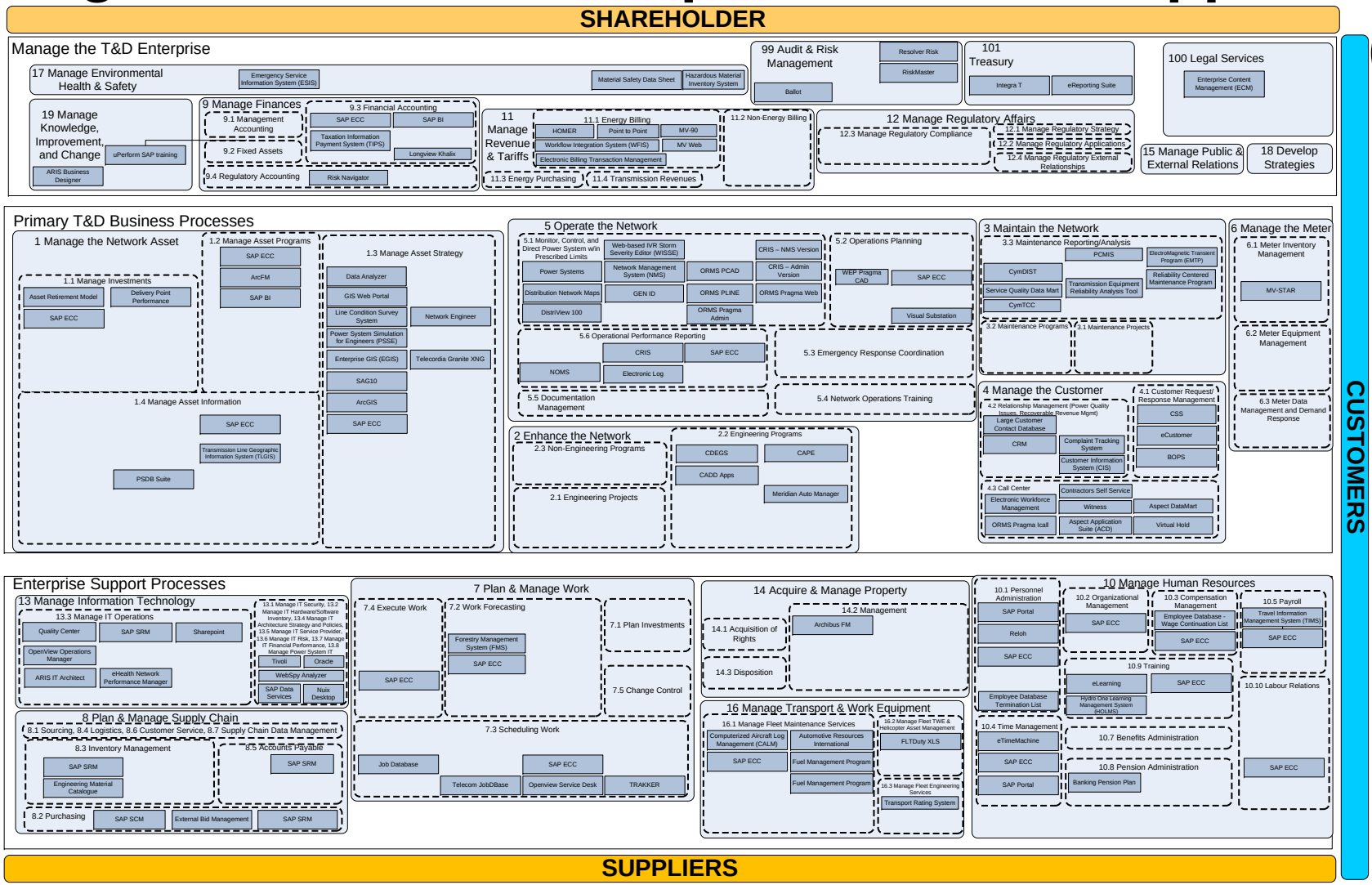
2010 Process Map for Business Applications



240+ (2008) to 183 (2010)

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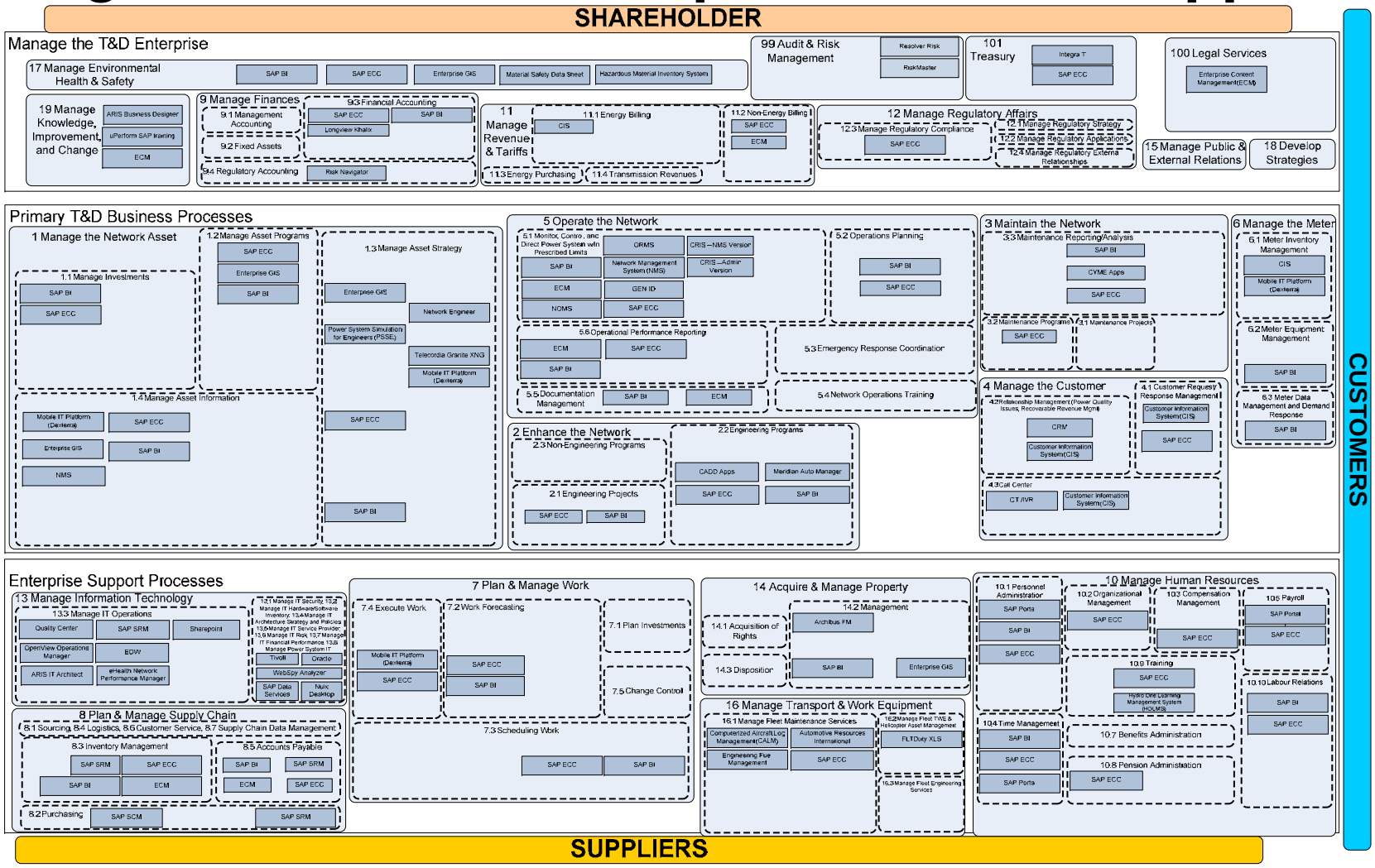
Target 2013 Process Map for Business Applications (93)



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Target 2015 Process Map for Business Applications

(38)



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HYDRO ONE NETWORKS INC.
Programs & Projects Status

OM&A and Capital Summary — January 2010

	Year-to-Date		Year-Over-Year		Year-End
($ millions)	2010 Actual	Variance to Budget	2009 Actual	Year/Year Variance	Budget
Transmission OM&A					
Lines	1	-	1	-	22
Forestry	1	-	1	-	24
Grid Operations	8	-	7	1	135
Engineering & Construction	2	-	1	1	56
Asset Mgt. & Other Operations	1	(1)	2	(1)	26
Property Taxes	6	-	6	-	69
Other Costs	13	(1)	15	(2)	105
Total	**32**	**(2)**	**33**	**(1)**	**437**
Transmission Capital					
Lines	3	1	3	-	33
Grid Operations	1	-	1	-	28
Major Transmission Development	46	6	48	(2)	970
Asset Management	-	-	-	-	3
Other Costs	9	3	11	(1)	122
Total	**59**	**10**	**63**	**(3)**	**1,156**

OM&A Programs and Projects

- **Transmission OM&A** year-to-date is $2M, or 6% lower than plan primarily reflecting lower than planned IT program expenditures due to timing. The program is ramping up and is expected to be back on track next month.

  OM&A is $1M, or 3% lower than 2009 primarily due to slightly lower IT expenditures.

Capital Programs and Projects

- **Transmission Capital** year-to-date is $10M, or 20% higher than plan primarily due to higher than planned expenditures resulting from a strong start to the delivery of materials related to the wood pole replacement, protection and control building replacement, and oil circuit breaker refurbishment programs, as well as higher than planned perimeter security expenditures related to copper theft prevention.

Major Capital Project Status

Summary — January 2010

Legend:

SPI: Schedule Performance Index
Indicator of 1 means project is on schedule.
Greater than 1 means project is ahead of schedule.
Less than 1 means project is behind schedule.

CPI: Cost Performance Index
Indicator of 1 means project cost is on budget.
Greater than 1 means project cost is less than budget.
Less than 1 means project cost is higher than budget.

GTA West Transmission Reinforcement



Approved Budget:	$47.6 M
Expenditures Life-to-date:	$42.3 M
Current Projection at Completion:	$44.6 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	Jun 2010

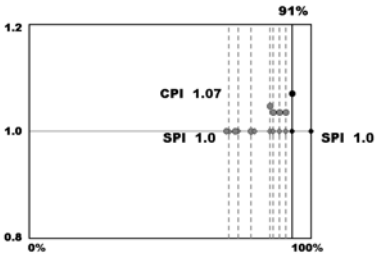
This project consists of constructing the new Hurontario SS and a 4 km line extension from Cardiff TS to Hurontario SS.

On February 1, 2010, the project was placed into service. Civil clean up, landscaping, and completion of the entrance and roads inside Hurontario SS are expected to be complete by June 2010.

Safety:	G	No issues
Cost:	G	Current projection at completion is $3M below the approved budget due to unused contingency allocated for soil conditions, outage delays and Winter weather work.
Schedule:	G	No issues
Issues:	G	No issues



Hurontario Lines Construction



Hurontario SS to Jim Yarrow TS



Approved Budget:	$42.0 M
Expenditures Life-to-date:	$26.5 M
Current Projection at Completion:	$32.0 M
Approved In-service Date:	Feb 2010
Current Projected In-service Date:	Mar 2010

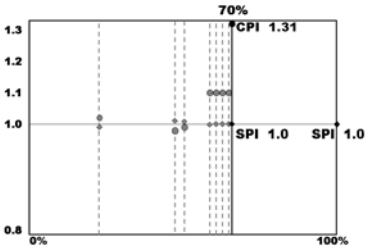
This project consists of constructing two 230kV underground cable circuits from Hurontario SS to Jim Yarrow Municipal TS to address load increases in the Western Brampton area.

On March 7, 2010, commissioning of the cable circuits to Jim Yarrow MTS was completed.

Safety:	G	No issues
Cost:	G	Project forecast is $10M below the approved budget due to contingency funds not required for risks including underground conditions, construction methods for underground installations and contract delays.
Schedule:	G	The in-service date has moved from February 2010 to March 2010. This change has been determined to be non-business impactive.
Issues:	G	No issues
Key Suppliers:	G	EPC contract for cable design, supply and install awarded to Black & McDonald.



Directional Drilling is Now Complete



Bruce to Milton

Approved Budget (Full Release):	$695.5M
Expenditures Life-to-date:	$217.7 M
Current Projection at Completion:	$695.5 M
Approved In-service Date:	Dec 2012



Travellers and Fly Rope Stored at Valard's Saugeen Yard

This project will construct a 500kV double-circuit line between the Bruce Nuclear Complex and the Milton SS to increase transfer capabilities for future renewable generation increases coming out of the Bruce area.

On February 11, 2010, Board approval for full project release was received. Construction activities are getting underway. On February 26, 2010, Hydro One filed its expropriation application to the OEB. As of February 22, 2010, Hydro One reached agreements with 226 properties out of 355, or approximately 64% to voluntarily acquire necessary land rights. Despite the Company's ongoing efforts to pursue voluntary acquisitions with property owners, construction timing concerns now require all remaining property interests to be obtained through expropriation. The full Niagara Escarpment Commission hearing commenced January 26, 2010 and is ongoing. Hearing dates are currently being scheduled for March.



Safety:	G	No issues
Cost:	G	The budget received Board approval on February 11, 2010 and assumes a favourable decision by the OEB regarding construction work in progress charges.
Schedule:	G	New in-service date is December 2012.
Issues:	Y	Approvals and Land Acquisition
Key Suppliers:	G	500kV line construction contract awarded to Valard Construction Ltd.

Milton SS Reconfiguration

Approved Budget:	$28.7 M
Expenditures Life-to-date:	$19.0 M
Current Projection at Completion:	$28.7 M
Approved In-service Date:	Dec 2010



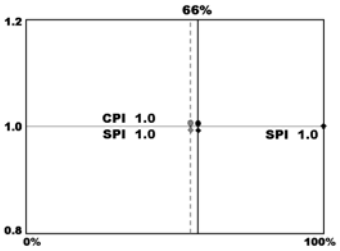
Preparing Gas Insulated Transmission Equipment Building Floor Concrete

This project includes the installation of additional 500kV station equipment to reconfigure the switching station at Milton in order to reduce or eliminate the need to curtail generation during forced and planned outages during construction for the Bruce to Milton project.

The project received Board approval in December 2009. Project expenditures to the end of 2009 primarily relate to major materials pre-purchased to preserve the project schedule. Construction commenced on January 4, 2010. Civil work related to gas insulated switchgear build is in progress.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Pickering NGS – PCT System Replacement

Approved Budget:	$27.5 M
Expenditures Life-to-date:	$19.3 M
Current Projection at Completion:	$21.6 M
Approved In-service Date:	30 Jun 2010

This project includes the replacement of the relay building at Hydro One's Pickering A switchyard to maintain the reliability and safety of the power system.

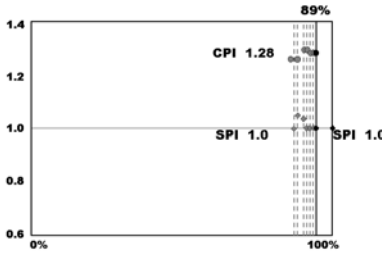
Prerequisite work for the 2010 outage continues on schedule. Remaining cutover work for two units is scheduled to commence in April 2010, contingent on OPG outage scheduling.

Safety:	G	No issues
Cost:	G	Project completion is projected to be approximately $6M below budget due to unused contingency allocated for risks around access to the site and uncertainty around OPG/Hydro One connection points, which were mitigated**;** and lower than planned interest charges resulting from an earlier than planned in-service of equipment.
Schedule:	G	There is a risk of delay to final cutover outages due to potential cancellation by the IESO for G20 summit meetings in Toronto.
Issues:	G	No issues



Standardized Protection Modules at Pickering SS





Niagara System Reinforcement

Approved Budget:	$116.0 M
Expenditures Life-to-date:	$98.1 M
Current Projection at Completion:	TBD
Approved In-service Date:	TBD

This project improves the ability of Hydro One's transmission system to deliver generation available in the Niagara peninsula and improves its ability to deliver imports from New York to loads in the rest of Ontario.

Work stopped due to First Nations protest in Caledonia.

Safety:	G	No issues
Cost:	G	Under budget
Schedule:	R	Work stopped due to First Nations protest in Caledonia.
Issues:	R	First Nations land claim issue.



Niagara 230kV Line



Claireville TS to Cherrywood TS

Approved Budget:	$117.3 M
Expenditures Life-to-date:	$95.0 M
Current Projection at Completion:	$117.3 M
Approved In-service Date:	Dec 2010

This project includes the reconfiguration and termination of existing lines to provide two additional 500kV lines between Claireville TS and Cherrywood TS, which will accommodate the increased power flows due to the new Hydro-Québec interconnection and the Portlands generating station.

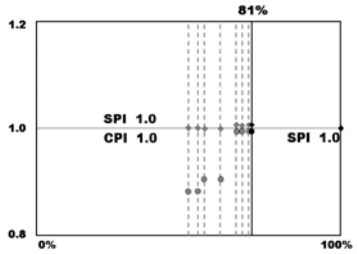
On November 19, 2009, the third set of 500kV breakers and the disconnect switches were placed into service. Construction activities continue on schedule for two remaining circuit breaker installations at Cherrywood TS and three at Claireville TS.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Claireville TS: New 500kV Gas Insulated Line Exit





Lakehead TS – Install SVC

Approved Budget:	$22.5 M
Expenditures Life-to-date:	$18.2 M
Current Projection at Completion:	$22.5 M
Approved In-service Date:	1 Dec 2009
Projected Completion Date:	Jul 2010

This project includes the installation of a static var compensator (SVC) at Lakehead TS, to replace a synchronous condenser and to mitigate risks of unacceptable voltages.

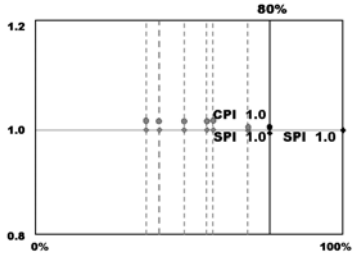
On November 25, 2009, the SVC was placed into service as scheduled. Grounding, fencing and clean up activities are underway. A conditional Noise Certificate of Approval (C of A) has been issued to allow the operation of the SVC until the end of 2010. Analysis of the noise levels has been completed. It was concluded that no noise mitigation measures are required.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract awarded to Siemens Canada Inc.



Lakehead SVC





Nobel SS: Install Series Capacitor Banks

Approved Budget:	$46.4 M
Expenditures Life-to-date:	$22.9 M
Current Projection at Completion:	$46.4 M
Approved In-service Date:	Dec 2010

This project includes the installation of two series capacitor banks at Nobel SS, which will increase power transfer capabilities along the transmission corridors North and South of Sudbury needed to facilitate the incorporation of renewable generation in Northern Ontario.

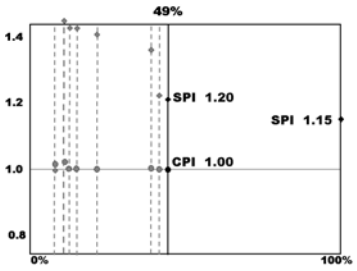
Construction activities continue and foundation work is underway. The platform to install the series capacitor is shipped and arrived at the Nobel site in February 2010.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Projected in-service date is expected to occur ahead of schedule.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract, including design, manufacturing equipment, factory inspection and testing, delivery, installation and commissioning awarded to ABB.



Nobel Station





Install SVC at Porcupine TS and Kirkland Lake TS

Approved Budget:	$109.0 M (Contingency Amount: $9.5M)
Expenditures Life-to-date:	$32.5 M
Current Projection at Completion:	$109.0 M
Approved In-service Date:	Nov 2010

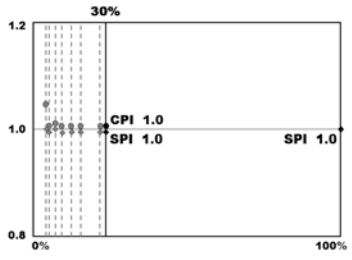
This project includes the installation of two SVCs at Porcupine TS and Kirkland Lake TS, which will further increase power transfer capabilities of renewable generation in Northern Ontario.

Construction activities continue for turnkey contractors at Porcupine TS and Kirkland TS

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract including design, manufacturing equipment, factory inspection and testing, delivery, installation, and commissioning awarded to ABB for Kirkland Lake and to AREVA for Porcupine.



Kirkland Lake TS



Woodstock Area Transmission Reinforcement

Approved Budget:	$71.6 M
Expenditures Life-to-date:	$26.6 M
Current Projection at Completion:	$71.6 M
Approved In-service Date:	Apr 2010
Current projected In-service Date:	Apr 2011

This includes the construction of Karn TS, a 230kV double-circuit line between Ingersoll TS and Karn TS, and a 230kV double-circuit line between Karn TS and Woodstock TS.

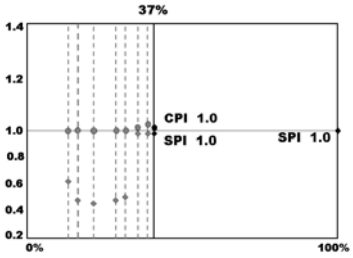
Construction on the permanent line between Karn and Ingersoll is ongoing. In February 2010, construction on the new 230kV transmission line between Woodstock TS and Karn TS was completed and station construction commenced at Karn TS. The temporary mobile unit substation was removed.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The approved in-service date for the completion of the permanent transmission line and completion of the system has been moved to April 2011 due to land acquisition delays. The delay has been determined to be non-business impactive.
Issues:	G	All sites have been cleared by the archaeological surveys.



Woodstock Lines Construction





Goreway TS – Add Transformation Capacity

Approved Budget:	$24.5 M (Contingency Amount: $1.8M)
Expenditures Life-to-date:	$20.1 M
Current Projection at Completion:	$24.5 M
Approved In-service Date:	01 May 2010

This project adds additional transformation capacity at Goreway TS to meet the growing needs of Hydro One Brampton.

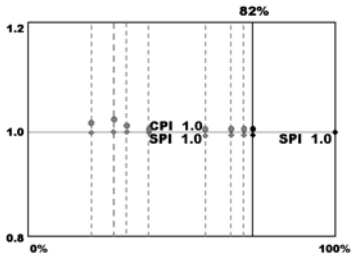
Civil and electrical construction activities continue on schedule. The major outage to connect the new facilities to the existing station continues on schedule.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Goreway 230kV Disconnect Switches





Nanticoke Breaker Replacement

Approved Budget:	$29.0 M
Expenditures Life-to-date:	$24.7 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	July 2011
Current projected In-service Date:	May 2010

This project replaces of circuit breakers and other equipment that reached their end-of-life to reduce operational risks, maintenance and improve reliability.

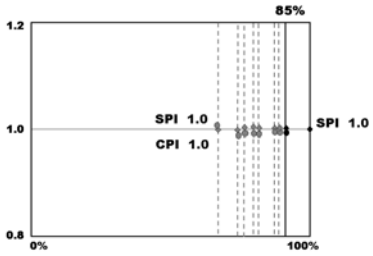
Construction is continuing on schedule with foundation and electrical work. Breaker replacements continue on schedule.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Nanticoke Circuit Breakers





Install Seven Capacitor Banks in South Western Ontario

Approved Budget:	$62.0 M (Contingency Amount: $12.0M)
Expenditures Life-to-date:	$55.4 M
Current Projection at Completion:	$62.0 M
Approved In-service Date:	31 Oct 2009
Current Projected In-service Date:	May 2010

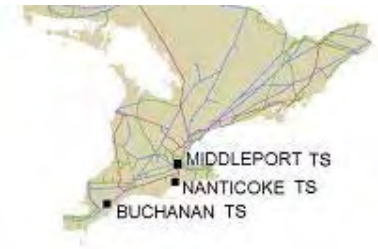
The OPA recommended that Hydro One install seven 230kV shunt capacitor banks at three transformer stations in South Western Ontario. The capacitors are a near term measure to expand transmission capacity in order to enable delivery of additional generation from the Bruce area.

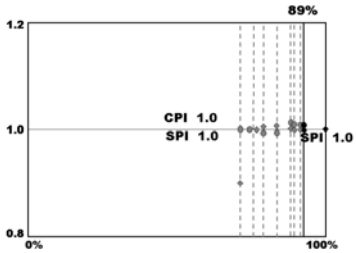
Construction activities continue at Buchanan TS. In December 2009, six of the seven capacitor banks were placed into service. The final capacitor bank at Buchanan TS is projected to go into service in May 2010.

Safety:	G	No issues.
Cost:	G	No issues
Schedule:	G	The in-service date of the final capacitor bank at Buchanan TS is now May 2010. This change has been determined to be non-business impactive.
Issues:	G	No issues
Key Suppliers:	G	ABB Inc. is the vendor for capacitor banks.



Capacitor Bank at Middleport TS





Increase Capacity at Vansickle TS

Approved Budget:	$16.6 M (Contingency Amount: $1.9M)
Expenditures Life-to-date:	$6.6 M
Current Projection at Completion:	$16.6 M
Approved In-service Date:	30 Nov 2010

Horizon Utilities has requested the capacity of Vansickle TS be expanded to supply new loads in St. Catharines as a result of projected increases in load growth.

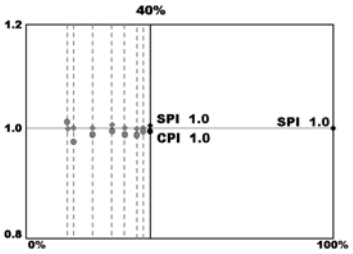
Construction activities continue. The two transformers are installed and are taking load.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	Y	Vendor delay of switchgear delivery is being closely monitored. Efforts are underway to help mitigate risk of delay in in-service.
Issues:	Y	Switchgear delivery delays
Key Suppliers:	G	General Switchgear & Controls Ltd. is the vendor for switchgear, and Hyundai Canada Inc. is the vendor for transformers.



Second Transformer Installed on Foundations





Burlington 115kV Switchyard Reconstruction

Approved Budget:	$61.0 M
Expenditures Life-to-date:	$5.8 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	Summer 2012

Multiple Burlington projects have been merged into a single investment to build a new 115kV switchyard on vacant property at Burlington TS.

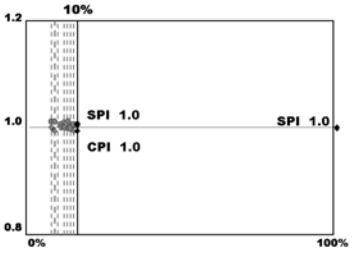
Engineering design work continues and civil construction continues with grading and foundation work.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Location of New North Yard at Burlington





Mitigate Reliability Issues of HV Shunt Capacitor Installations – Phase Two

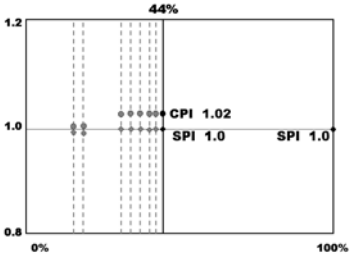
Approved Budget:	$46.7 M (Phase 1 & 2) (Contingency Amount: $4.7M)
Expenditures Life-to-date:	$20.1 M (Phase 1 & 2)
Current Projection at Completion:	$45.8 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Dec 2011



Shunt Capacitor – Burlington TS

Phase two addresses the outstanding risks associated with Hydro One's fleet of shunt capacitor bank installations by equipping them with surge capacitors among other activities.

Construction activities continue at Richview TS and are expected to be completed August 2010. Construction will commence at Burlington TS in April 2010.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The project schedule has been extended by one year to December 2011 to accommodate outage considerations. This delay has been determined to be non-system impactive.
Issues:	G	No issues

Churchill Meadows TS: Build New DESN

Approved Budget:	$31.0 M
Expenditures Life-to-date:	$21.5 M
Current Projection at Completion:	$28.3 M
Approved In-service Date:	Jun 2010
Current Projected In-service Date:	Aug 2010



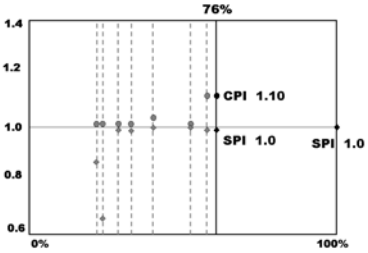
Construction at Churchill Meadows TS

This project includes the construction of Churchill Meadows TS to relieve overloads at existing Hydro One stations in South West GTA and to meet future load growth.

Construction activities are ongoing.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The LDC has accepted the project delay of three months, from early June to late August 2010, due to drainage C of A requirements.
Issues:	G	The first transformer delivery will be three months delayed; however, the schedule had been revised and was able to accommodate this.



P3S & P4S Line Refurbishment and Equipment Replacement

Approved Budget:	$21.1 M (Contingency Amount: $1.6M)
Expenditures Life-to-date:	$8.3 M
Current Projection at Completion:	$22.9 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	May 2011

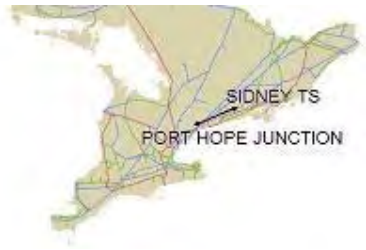
This project replaces end-of-life equipment and components within sections of circuits P3S and P4S between Port Hope Junction and Sidney TS.

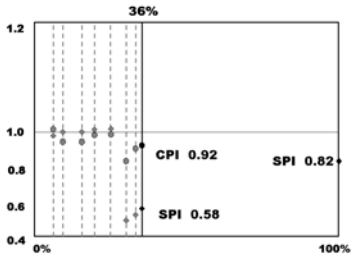
Construction on the P4S line continues.

Safety:	G	No issues
Cost:	R	The Asset Condition Assessment has identified a 30% increase required for wood pole replacement. An IROV is being prepared for the additional cost and delay to the schedule associated with this increase in scope. The IROV is expected to be submitted in March 2010.
Schedule:	R	The projected in-service date is now May 2011. An IROV is being prepared.
Issues:	G	No issues



Stringing the P4S Circuit





Longlac TS

Approved Budget:	$20.5 M
Expenditures Life-to-date:	$6.6 M
Current Projection at Completion:	$20.5 M
Approved In-service Date:	July 2011

This project replaces end-of-life equipment at Longlac TS and provides additional transformation capacity to enable future connection of embedded generators and increase the station's reliability.

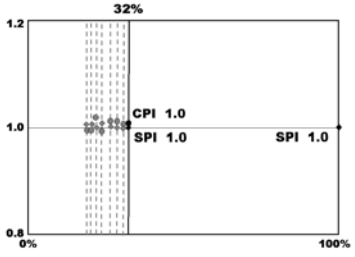
Engineering, procurement and construction activities continue.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Longlac TS





Static Var Compensators at Detweiler TS and Nanticoke TS

Approved Budget:	$165.0 M
Expenditures Life-to-date:	$8.1 M
Current Projection at Completion:	$165.0 M
Approved In-service Date:	May 2011

This project includes the installation of SVCs at Detweiler TS and Nanticoke TS to support increased generation from the Bruce nuclear plant and wind generation from the Bruce area as a short term measure prior to the in-service of the Bruce to Milton 500kV line.

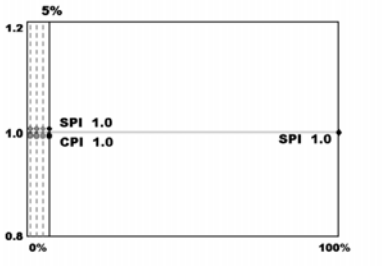
On June 18, 2009, the project received Board approval. Engineering activities are underway at Detweiler TS and Nanticoke TS.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) EPC contract for the Detweiler SVC awarded to ABB. 2) EPC contract for the Nanticoke SVC awarded to Siemens Canada Inc. and ABB is the vendor for 500kV breakers.



Nanticoke TS





Perimeter Security Upgrade for Stations

Approved Budget:	$30.5 M
Expenditures Life-to-date:	$24.7 M
Current Projection at Completion:	TBD
Approved In-service Date:	Nov 2009
Current Projected In-service Date:	TBD

Perimeter security will be upgraded at 45 transmission stations in the GTA as part of Hydro One's copper theft prevention strategy. Security will be set up around the station perimeter and at all main gates. Razor mesh and security systems have been installed at 14 stations so far. Work is currently underway at eight additional stations.

Safety:	G	No issues
Cost:	R	An IROV is being prepared to reflect contract change orders including grounding and bonding. Full connectivity of security systems are also under consideration.
Schedule:	R	An IROV is being prepared for a revised in-service date due to contract change orders and training required for new technology.
Issues:	G	Fence bonding and grounding methods have been reviewed.
Key Suppliers:	G	Turnkey contract for the supply and install of razor mesh fencing and intrusion and infrared detection awarded to Safeguards of Canada Inc.



Razor Mesh Fencing

Major Green Projects Development

In September 2009, the Government of Ontario asked Hydro One to proceed with twenty green transmission projects in support of the Green Energy Act. From these twenty, seven projects will be given priority by the OPA. For these projects, a set of critical milestone activities that are under Hydro One's control will be identified.

Summary — January 2010

North-South Transmission Expansion *(Sudbury x Barrie x Greater Toronto Area)*

Budget (Development): $ 18.2 M
Budget (Capital): $ 884.3 M
Expenditures Life-to-date: $ 0.2 M
In-service: Dec 2016



This project consists of building one additional single-circuit 500 kV line on an existing corridor from Sudbury to the Greater Toronto Area via Barrie. Overall, it will increase capacity by 1,700 MW.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

Milestones Completed in January 2010
Complete Internal List of Potentially Affected First Nations & Métis
Complete First Contacts with Potentially Affected First Nations & Métis
Complete conceptual scopes for options
Conceptual scopes for options sent to E&CS

Sudbury x Algoma Area *(Hanmer x Mississagi)*

Budget (Development): $ 5.8 M
Budget (Capital): $ 459.4 M
Expenditures Life-to-date: $ 0.1 M
In-service: 2014



This project consists of building a second 500 kV line from Sudbury to the Algoma Area on an existing corridor. The new line will increase the electricity transfer capability by approximately 1,300 MW assuming that the existing 230 kV line is also converted to operation at 500 kV.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

Milestones Completed in January 2010
Complete Internal List of Potentially Affected First Nations & Métis
Complete First Contacts with Potentially Affected First Nations & Métis
Complete conceptual scopes for options
Conceptual scopes for options sent to E&CS

East-West Transmission Tie *(Nipigon x Wawa)*

Budget (Development): $ 12.1 M
Budget (Capital): $ 511.2 M
Expenditures Life-to-date: $ 0.1 M
In-service: 2016



To accommodate interest and opportunities in renewable generation in North Western Ontario, a new 300km double-circuit 230kV transmission line is required from Wawa TS to Nipigon SS. The new line is expected to parallel the existing transmission corridor between Lakehead and Wawa. The project will increase the Northwest to Southern Ontario transfer capability by approximately 300 MW.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

Milestones Completed in January 2010
Complete Internal List of Potentially Affected First Nations & Métis
Complete First Contacts with Potentially Affected First Nations & Métis
Complete conceptual scopes for options
Conceptual scopes for options sent to E&CS

Northwest Transmission Expansion *(Pickle Lake x Nipigon)*

Budget (Development): $ 21.7 M
Budget (Capital): $ 425.0 M
Expenditures Life-to-date: $ 1.6 M
In-service: 2014



To incorporate hydroelectric and wind projects in the Lake Nipigon area, and to enable economic growth through increased capacity and reliability, a new 430km single circuit 230kV transmission line is needed from the Nipigon area to the Pickle Lake area. The line will accommodate up to 400 MW of renewable generation.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *1*
Year-to-date Completed Milestones: *1*

Milestones Completed in January 2010
Complete Draft Terms of Reference for Environmental Assessment

Manitoulin Island Enabler

Budget (Development): $ 7.5 M
Budget (Capital): $ 169.4 M
Expenditures Life-to-date: $ 0.1 M
In-service: 2015



The OPA has identified Manitoulin Island as one of a number of areas with substantial renewable development potential. The enabler line will accommodate up to 500 MW of wind generation on the island via a new 230kV single-circuit transmission line approximately 80 km in length. The actual length and the terminal points will be determined on the basis of the Feed-in-Tariff program results.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *2*
Year-to-date Completed Milestones: *2*

Milestones Completed in January 2010
Complete Internal List of Potentially Affected First Nations & Métis
Complete First Contacts with Potentially Affected First Nations & Métis

Goderich Enabler

Budget (Development): $ 5.0 M
Budget (Capital): $ 114.8 M
Expenditures Life-to-date: $ - M
In-service: 2014



The OPA has identified Goderich as one of a number of areas with substantial renewable development potential. Based on the latest information received from the OPA regarding the possible location of the renewable generator proponents, two main options are under consideration. Plans are subject to change as further information is provided by the OPA and as the environmental assessment and preliminary engineering work is carried out.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *1*
Year-to-date Completed Milestones: *1*

Milestones Completed in January 2010
OPA Engagement – Discuss Project Need and Timing

West of London Transmission Expansion



Budget (Development):	$ 5.0 M
Budget (Capital):	$ 114.8 M
Expenditures Life-to-date:	$ - M
In-service:	2014

Hydro One has begun planning to identify transmission solutions that accommodate the significant interest in wind generation development in the area west of London. The OPA has advised Hydro One that approximately 1,600 MW of FIT applications were received for South Western Ontario, west of London. The available transmission capacity in that area is about 500 MW. This project will be designed to accommodate as much of that as possible. The reference plan for the project currently involves the construction of three single-circuit 500 kV or 230 kV transmission lines. In view of the power system connectivity and the land use profile in the region, many options need to be considered.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Status
Early development work is underway.

HYDRO ONE NETWORKS INC.
Programs & Projects Status

OM&A and Capital Summary					February 2010
	Year-to-Date		Year-Over-Year		Year-End
($ millions)	2010 Actual	Variance to Budget	2009 Actual	Year/Year Variance	Budget
Transmission OM&A					
Lines	3	-	3	-	22
Forestry	3	-	2	1	24
Grid Operations	17	2	13	4	135
Engineering & Construction	5	1	3	2	56
Asset Mgt. & Other Operations	2	(1)	3	(1)	26
Property Taxes	11	(1)	11	-	69
Other Costs	24	(3)	29	(5)	105
Total	**65**	**(2)**	**64**	**1**	**437**
Transmission Capital					
Lines	7	2	6	1	33
Grid Operations	2	-	1	1	28
Engineering & Construction	99	13	88	11	970
Asset Management	-	-	-	-	3
Other Costs	14	5	27	(13)	122
Total	**122**	**20**	**122**	**-**	**1,156**

OM&A Programs and Projects

- **Transmission OM&A** year-to-date is $2M, or 3% lower than plan primarily due to lower than planned expenditures associated with information security enhancements at the OGCC reflecting timing of material deliveries and lower than planned property taxes due to timing of First Nations rights payments and lower rights payments for railways, partially offset by higher than planned corrective stations-related maintenance expenditures mainly due to a higher volume of breaker repairs.

Capital Programs and Projects

- **Transmission Capital** year-to-date is $20M, or 20% higher than plan primarily reflecting timing of expenditures related to transmission sustainment programs, including the spare transformer, wood pole replacement and protection and control replacement programs due to timing of progress payments and material deliveries. The ramp up in program spending is, in part, facilitated by having multi-year program releases in place. The variance is also contributed by the carryover project spend for the perimeter security project into 2010.

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Major Capital Project Status

Summary — February 2010

Legend:

SPI: Schedule Performance Index
Indicator of 1 means project is on schedule.
Greater than 1 means project is ahead of schedule.
Less than 1 means project is behind schedule.

CPI: Cost Performance Index
Indicator of 1 means project cost is on budget.
Greater than 1 means project cost is less than budget.
Less than 1 means project cost is higher than budget.

GTA West Transmission Reinforcement



Approved Budget:	$47.6 M
Contingency:	$3.1 M
Expenditures Life-to-date:	$43.3 M
Current Projection at Completion:	$44.6 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	May 2010

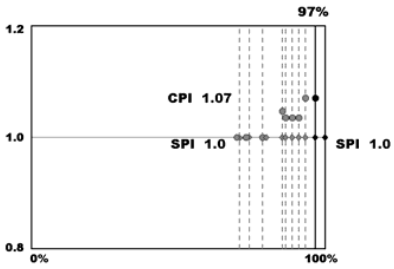
This project consists of constructing the new Hurontario SS and a 4 km line extension from Cardiff TS to Hurontario SS.

On February 1, 2010, the project was placed into service. On March 7, 2010, civil clean up and landscaping activities commenced and are expected to continue until late May 2010.

Safety:	G	No issues
Cost:	G	Current projection at completion is expected to be $3M below the approved budget due to unused contingency allocated for soil conditions, outage delays and Winter weather work.
Schedule:	G	No issues
Issues:	G	No issues



Hurontario Lines Construction



Hurontario SS to Jim Yarrow TS



Approved Budget:	$42.0 M
Contingency:	$6.0 M
Expenditures Life-to-date:	$27.3 M
Current Projection at Completion:	$32.0 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	Jun 2010

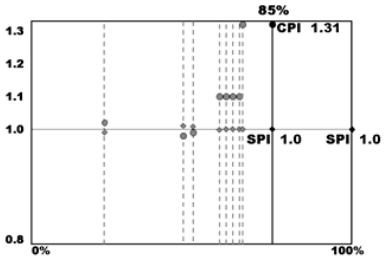
This project consists of constructing two 230kV underground cable circuits from Hurontario SS to Jim Yarrow Municipal TS to address load increases in the Western Brampton area.

On March 7, 2010, commissioning activities were completed and the project went into service. Cleanup work has begun and is expected to be completed in June 2010.

Safety:	G	No issues
Cost:	G	Projection at completion is $10M below the approved budget due to contingency funds not required for risks, including poor underground conditions, construction methods for underground installations and contract delays.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract for cable design, supply and install awarded to Black & McDonald.



Directional Drilling is Now Complete



Bruce to Milton



Approved Budget (Full Release):	$695.5 M
Contingency:	$29.3 M
Expenditures Life-to-date:	$235.2 M
Current Projection at Completion:	$695.5 M
Approved In-service Date:	Dec 2012

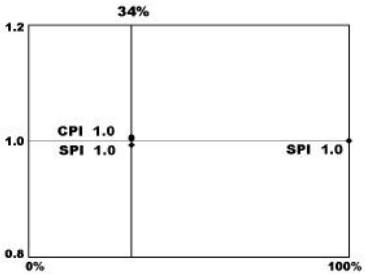
This project will construct a 500kV double-circuit line between the Bruce Nuclear Complex and the Milton SS to increase transfer capabilities for future renewable generation increases coming out of the Bruce area.

As of February 28, 2010, Hydro One reached agreements with 230 properties out of 350 to voluntarily acquire necessary land rights. Approximately 162 of these option agreements have been exercised to date. The expropriation process commenced on February 26, 2010. The tender for right-of-way clearing has been awarded and work commenced mid-March 2010. Other tenders for civil construction material are being reviewed. Pre-construction activities are underway. Road construction and foundation installation are scheduled to commence in early May 2010. The Niagara Escarpment Commission (NEC) hearing commenced January 26, 2010 and concluded its cross examination on March 24, 2010. A decision is expected in late April 2010.

Safety:	G	No issues
Cost:	G	The budget received Board approval on February 11, 2010 and assumes a favourable decision by the OEB regarding construction work in progress charges.
Schedule:	G	No issues
Issues:	Y	NEC Approvals and Land Acquisition
Key Suppliers:	G	500kV line construction contract awarded to Valard Construction Ltd and contract for right-of-way clearing awarded to Winona Wood Ltd.



Travellers and Fly Rope Stored at Valard's Saugeen Yard



Milton SS Reconfiguration



Approved Budget:	$28.7 M
Contingency:	$2.0 M
Expenditures Life-to-date:	$20.1 M
Current Projection at Completion:	$28.7 M
Approved In-service Date:	Dec 2010

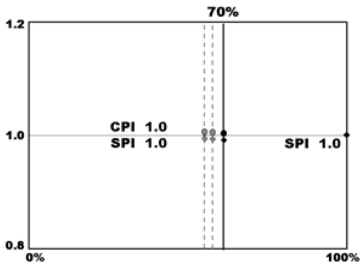
This project includes the installation of additional 500kV station equipment to reconfigure the switching station at Milton in order to reduce or eliminate the need to curtail generation during forced and planned outages during construction for the Bruce to Milton project.

On March 4, 2010, major concreting work in the gas insulated switchgear (GIS) building was completed. Civil work related to GIS building is in progress. Other construction activities continue.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	ABB Inc. is the supplier of gas-insulated switchgear.



Preparing Gas Insulated Transmission Equipment Building Floor Concrete



Pickering NGS – PCT System Replacement



Approved Budget:	$27.5 M
Contingency:	$2.8 M
Expenditures Life-to-date:	$19.4 M
Current Projection at Completion:	$21.3 M
Approved In-service Date:	30 Jun 2010

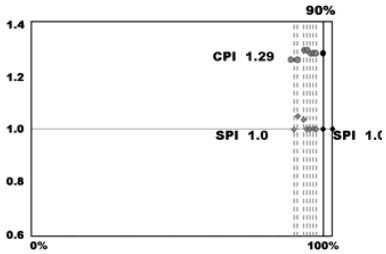
This project includes the replacement of the relay building at Hydro One's Pickering A switchyard to maintain the reliability and safety of the power system.

Prerequisite work for the 2010 outage continues on schedule. Remaining cutover work for two units is scheduled to commence in April 2010, contingent on OPG outage scheduling.

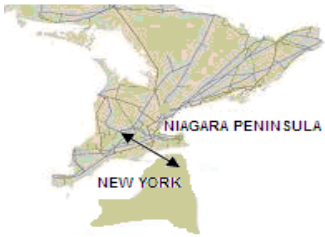
Safety:	G	No issues
Cost:	G	Project completion is projected to be approximately $6M below budget due to unused contingency allocated for risks around access to the site and uncertainty around OPG/Hydro One connection points, which were mitigated**;** and lower than planned interest charges resulting from an earlier than planned in-service of equipment.
Schedule:	G	No issues
Issues:	G	No issues



Standardized Protection Modules at Pickering SS



Niagara System Reinforcement



Approved Budget:	$116.0 M
Expenditures Life-to-date:	$98.1 M
Current Projection at Completion:	TBD
Approved In-service Date:	TBD

This project improves the ability of Hydro One's transmission system to deliver generation available in the Niagara peninsula and improves its ability to deliver imports from New York to loads in the rest of Ontario.

Work stopped due to First Nations protest in Caledonia.

Safety:	G	No issues
Cost:	G	Under budget
Schedule:	R	Work stopped due to First Nations protest in Caledonia.
Issues:	R	First Nations land claim issue.



Niagara 230kV Line

Claireville TS to Cherrywood TS



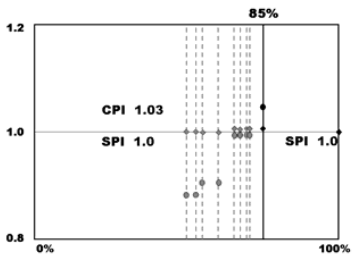
Approved Budget:	$117.3 M
Contingency:	$7.5 M
Expenditures Life-to-date:	$96.6 M
Current Projection at Completion:	$114.0 M
Approved In-service Date:	Dec 2010

This project includes the reconfiguration and termination of existing lines to provide two additional 500kV lines between Claireville TS and Cherrywood TS, which will accommodate the increased power flows due to the new Hydro-Québec interconnection and the Portlands generating station.



Claireville TS: New 500kV Gas Insulated Line Exit

Construction activities continue on schedule for two remaining circuit breaker installations at Cherrywood TS, including equipment installation and gas-insulated line installation. Construction activities continue on schedule for three circuit breaker installations at Claireville TS.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget due to an earlier than planned in-service of equipment resulting in reduced interest charges.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) AREVA is the supplier of switches at Cherrywood TS and Claireville TS. 2) ABB is the supplier for circuit breakers and CGIT is the supplier of gas-insulated buses at Cherrywood TS. 3) ABB is the supplier for gas insulated switchgear at Claireville TS.

Lakehead TS – Install SVC



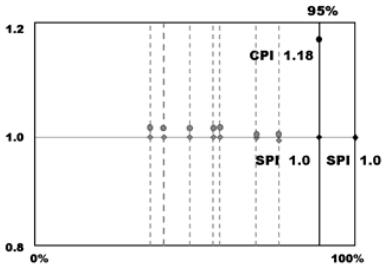
Approved Budget:	$22.5 M
Contingency:	$2.7 M
Expenditures Life-to-date:	$18.0 M
Current Projection at Completion:	$19.0 M
Approved In-service Date:	1 Dec 2009
Projected Completion Date:	Jul 2010

This project includes the installation of a static var compensator (SVC) at Lakehead TS, to replace a synchronous condenser and to mitigate risks of unacceptable voltages.



Lakehead SVC

On November 28, 2009, the SVC was placed into service as scheduled. A conditional Noise Certificate of Approval (C of A) has been issued to allow the operation of the SVC until the end of 2010. In February 2010, analysis of the noise levels was completed. Based on field measurements, it was concluded that a noise mitigation wall is not required.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3.5M below the approved budget primarily due to contingency funds not required for noise mitigation.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract awarded to Siemens Canada Inc.

Nobel SS: Install Series Capacitor Banks



Approved Budget:	$46.4 M
Contingency:	$3.7 M
Expenditures Life-to-date:	$23.0 M
Current Projection at Completion:	$46.4 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Aug 2010

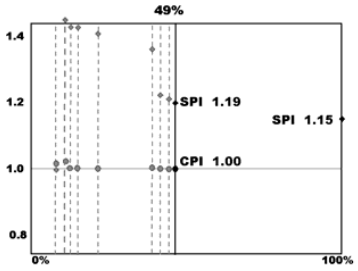


Nobel Station

This project includes the installation of two series capacitor banks at Nobel SS, which will increase power transfer capabilities along the transmission corridors North and South of Sudbury needed to facilitate the incorporation of renewable generation in Northern Ontario.

Vendor construction activities continue with foundation and platform work.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Projected in-service date is expected to occur ahead of schedule.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract, including design, manufacturing equipment, factory inspection and testing, delivery, installation and commissioning awarded to ABB.



Install SVCs at Porcupine TS and Kirkland Lake TS



Approved Budget:	$109.0 M
Contingency:	$10.1 M
Expenditures Life-to-date:	$34.5 M
Current Projection at Completion:	$109.0 M
Approved In-service Date:	Nov 2010
Current Projected In-service Date:	Mar 2011

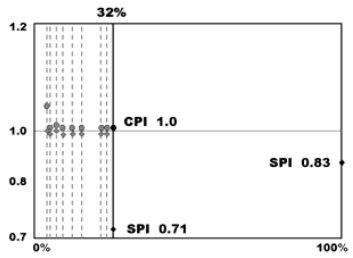


Kirkland Lake TS

This project includes the installation of two SVCs at Porcupine TS and Kirkland Lake TS, which will further increase power transfer capabilities North of Sudbury for renewable generation in Northern Ontario.

The vendor has requested a revised in-service date in March 2011 due to a delay in receiving the drainage C of A, resulting in late mobilization, and contaminated soil at Kirkland Lake TS. Construction activities continue on schedule for the turnkey contractor at Porcupine TS.

Safety:	G	No issues
Cost:	Y	The cost impact of the delay at Kirkland Lake is being reviewed.
Schedule:	G	Projected in-service date for Kirkland Lake TS is now March 2011 due to contaminated soil and receipt of C of A. This delay has been determined to be non-system impactive.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract including design, manufacturing equipment, factory inspection and testing, delivery, installation, and commissioning awarded to ABB for Kirkland Lake and to AREVA for Porcupine.



Woodstock Area Transmission Reinforcement



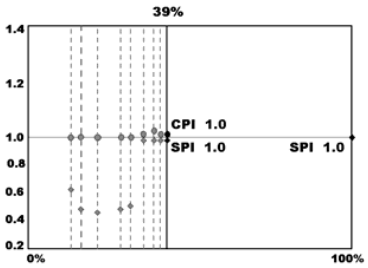
Approved Budget:	$71.6 M
Contingency:	$9.3 M
Expenditures Life-to-date:	$28.0 M
Current Projection at Completion:	$71.6 M
Approved In-service Date:	Apr 2010
Current projected In-service Date:	Apr 2011

This project includes the construction of Karn TS, a 230kV double-circuit line between Ingersoll TS and Karn TS, and a 230kV double-circuit line between Karn TS and Woodstock TS.



Woodstock Lines Construction

Construction on the transmission line between Woodstock TS and Karn TS is complete. Construction on the permanent line between Karn and Ingersol is ongoing. In February 2010, station construction commenced at Karn TS.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The approved in-service date for the completion of the permanent transmission line and completion of the system has been moved to April 2011 due to land acquisition delays. The delay has been determined to be non-business impactive.
Issues:	G	All sites have been cleared by the archaeological surveys.

Goreway TS – Add Transformation Capacity



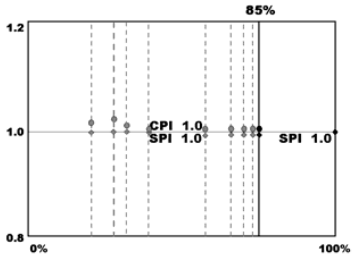
Approved Budget:	$24.5 M
Contingency:	$1.3 M
Expenditures Life-to-date:	$20.8 M
Current Projection at Completion:	$24.5 M
Approved In-service Date:	01 May 2010

This project adds additional transformation capacity at Goreway TS to meet the growing needs of Hydro One Brampton.



Goreway 230kV Disconnect Switches

Commissioning activities and civil electrical construction continue on schedule.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	Hyundai Canada Inc. is the vendor for transformers; Virelec Ltd. is the supplier for the protection, control and telecommunication in a box building; Mitsubishi is the vendor for 28kV circuit breakers.

Nanticoke Breaker Replacement

Approved Budget:	$29.0 M
Contingency:	$2.9 M
Expenditures Life-to-date:	$25.5 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	July 2011

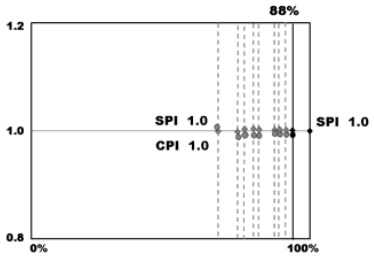


Nanticoke Circuit Breakers

This project replaces circuit breakers and other equipment that have reached their end-of-life to reduce operational risks, maintenance and improve reliability.

Construction is continuing on schedule with foundation and electrical work. Breaker replacements continue on schedule.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Install Capacitor Banks in South Western Ontario



Approved Budget:	$62.0 M
Contingency:	$8.0 M
Expenditures Life-to-date:	$55.9 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	31 Oct 2009
Current Projected In-service Date:	May 2010

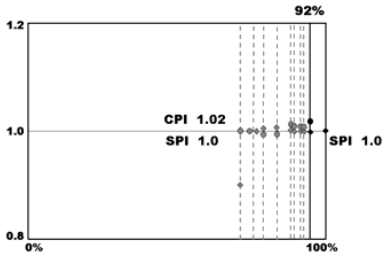


Capacitor Bank at Middleport TS

The OPA recommended that Hydro One install seven 230kV shunt capacitor banks at three transformer stations in South Western Ontario. The capacitors are a near term measure to expand transmission capacity in order to enable delivery of additional generation from the Bruce area.

Construction and commissioning activities continue at Buchanan TS. In December 2009, six of the seven capacitor banks were placed into service. The final capacitor bank at Buchanan TS is projected to go into service in May 2010.

Safety:	G	No issues.
Cost:	G	No issues
Schedule:	G	The in-service date of the final capacitor bank at Buchanan TS is now May 2010. This change has been determined to be non-business impactive.
Issues:	G	No issues
Key Suppliers:	G	ABB is the vendor for capacitor banks.



Increase Capacity at Vansickle TS



Approved Budget:	$16.6 M
Contingency:	$1.9 M
Expenditures Life-to-date:	$7.0 M
Current Projection at Completion:	$16.8 M
Approved In-service Date:	30 Nov 2010

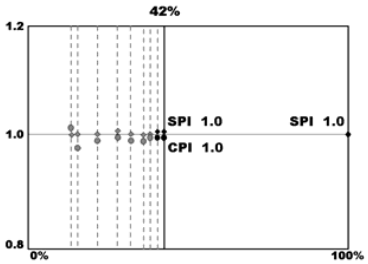
Horizon Utilities has requested the capacity of Vansickle TS be expanded to supply new loads in St. Catharines as a result of projected increases in load growth.

Construction activities continue. The two transformers are installed and are taking load.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	Y	Vendor delay of switchgear delivery is being closely monitored. Efforts are underway to help mitigate risk of delay in in-service.
Issues:	Y	Switchgear delivery delays
Key Suppliers:	G	General Switchgear & Controls Ltd. is the vendor for switchgear, and Hyundai Canada Inc. is the vendor for transformers.



Second Transformer Installed on Foundations



Burlington 115kV Switchyard Reconstruction



Approved Budget:	$61.0 M
Contingency:	$5.5 M
Expenditures Life-to-date:	$6.9 M
Current Projection at Completion:	$60.5 M
Approved In-service Date:	Summer 2012

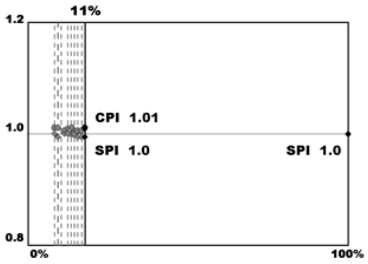
Multiple Burlington projects have been merged into a single investment to build a new 115kV switchyard on vacant property at Burlington TS.

Engineering design work continues, and civil construction continues with grading and foundation work. Building foundations are complete. On March 5, 2010, steel structure assembly commenced.

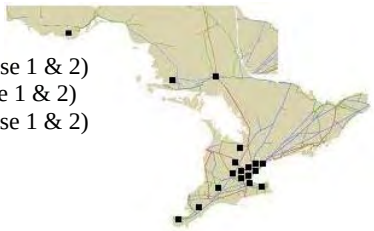
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	Engineering, procurement and install contract awarded to PCR Contractors Inc. for 115 kV relay building.



Location of New North Yard at Burlington



Mitigate Reliability Issues of HV Shunt Capacitor Installations – Phase Two



Approved Budget:	$46.7 M (Phase 1 & 2)
Contingency:	$4.7 M (Phase 1 & 2)
Expenditures Life-to-date:	$21.9 M (Phase 1 & 2)
Current Projection at Completion:	$45.8 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Dec 2011

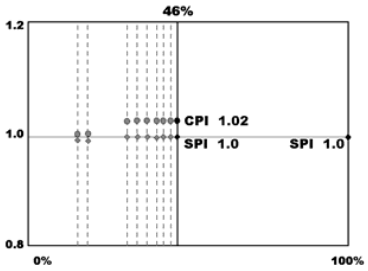
Phase Two addresses the outstanding risks associated with Hydro One's fleet of shunt capacitor bank installations by equipping them with surge capacitors among other activities.

Construction activities continue at Richview TS and are expected to be completed August 2010. Construction will commence at Burlington TS in April 2010. These are the first two of 18 stations, which are on schedule to be complete by December 2011.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The project schedule has been extended by one year to December 2011 to accommodate outage considerations. This delay has been determined to be non-system impactive.
Issues:	G	No issues



Shunt Capacitor – Burlington TS



Churchill Meadows TS: Build New DESN



Approved Budget:	$31.0 M
Contingency:	$2.3 M
Expenditures Life-to-date:	$22.4 M
Current Projection at Completion:	$28.3 M
Approved In-service Date:	Jun 2010
Current Projected In-service Date:	Aug 2010

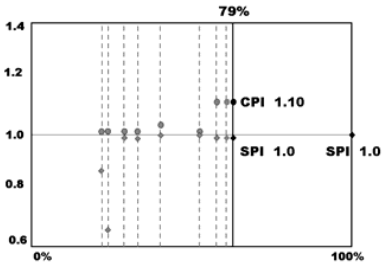
This project includes the construction of Churchill Meadows TS to relieve overloads at existing Hydro One stations in South West GTA and to meet future load growth.

Construction activities continue on schedule.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The LDC has accepted the project delay of three months, from early June to late August 2010, due to drainage C of A requirements.
Issues:	G	The first transformer delivery will be three months delayed; however, the schedule had been revised and was able to accommodate this.



Construction at Churchill Meadows TS



P3S & P4S Line Refurbishment and Equipment Replacement



Approved Budget:	$21.1 M
Contingency:	$1.6 M
Expenditures Life-to-date:	$9.2 M
Current Projection at Completion:	$23.8 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	May 2011

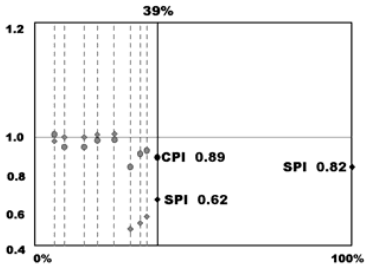
This project replaces end-of-life equipment and components within sections of circuits P3S and P4S between Port Hope Junction and Sidney TS.

Replacement of the wood poles on P4S was 7% higher than identified in the Asset Condition Assessment and 50% higher for P3S.

Safety:	G	No issues
Cost:	R	An IROV has been prepared for the additional cost and delay to the schedule associated with this increase in scope and was submitted in late March 2010.
Schedule:	R	The projected in-service date is now May 2011. An IROV was submitted.
Issues:	G	No issues



Stringing the P4S Circuit



Longlac TS



Approved Budget:	$20.5 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$6.9 M
Current Projection at Completion:	$20.5 M
Approved In-service Date:	July 2011

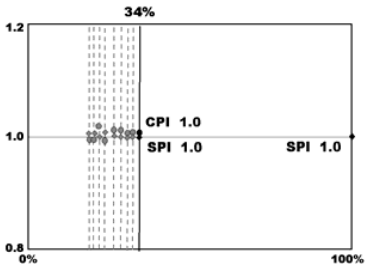
This project replaces end-of-life equipment at Longlac TS and provides additional transformation capacity to enable future connection of embedded generators and increase the station's reliability.

Engineering, procurement and construction activities continue.

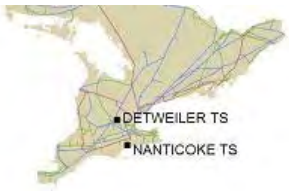
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Longlac TS



Install SVCs at Detweiler TS and Nanticoke TS



Approved Budget:	$165.0 M
Contingency:	$28.8 M
Expenditures Life-to-date:	$8.5 M
Current Projection at Completion:	$165.0 M
Approved In-service Date:	May 2011

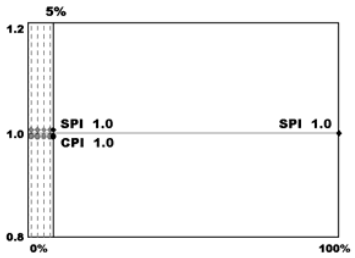
This project includes the installation of SVCs at Detweiler TS and Nanticoke TS to support increased generation from the Bruce nuclear plant and wind generation from the Bruce area as a short term measure prior to the in-service of the Bruce to Milton 500kV line.

On February 17, 2010, Hydro One construction commenced at Nanticoke TS. Vendor construction of the SVC is scheduled to begin in early April 2010. Vendor engineering activities continue at Detweiler TS. Construction of the SVC is scheduled to begin in late April 2010.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) EPC contract for the Detweiler SVC awarded to ABB. 2) EPC contract for the Nanticoke SVC awarded to Siemens Canada Inc. and ABB is the vendor for 500kV breakers.



Nanticoke TS



Perimeter Security Upgrade for Stations

Approved Budget:	$30.5 M
Expenditures Life-to-date:	$26.3 M
Current Projection at Completion:	TBD
Approved In-service Date:	Nov 2009
Current Projected In-service Date:	TBD

Perimeter security will be upgraded at 45 transmission stations in the GTA as part of Hydro One's copper theft prevention strategy. Security will be set up around the station perimeter and at all main gates. Razor mesh and security systems have been installed at 14 stations so far. Work is currently underway at ten additional stations.

Safety:	G	No issues
Cost:	R	An IROV is being prepared to reflect contract change orders including grounding and bonding. Full connectivity of security systems are also under consideration.
Schedule:	R	An IROV is being prepared for a revised in-service date due to contract change orders and training required for new technology.
Issues:	G	Fence bonding and grounding methods have been reviewed.
Key Suppliers:	G	Turnkey contract for the supply and install of razor mesh fencing and intrusion and infrared detection awarded to Safeguards of Canada Inc.



Razor Mesh Fencing

Major Green Projects Development

In September 2009, the Government of Ontario asked Hydro One to proceed with twenty green transmission projects in support of the Green Energy Act. From these twenty, seven projects have been given priority by the OPA. For these projects, a set of critical milestone activities that are under Hydro One's control will be identified.

Summary — February 2010

North-South Transmission Expansion *(Sudbury x Barrie x Greater Toronto Area)*

Budget (Development): $ 18.2 M
Budget (Capital): $ 884.3 M
Expenditures Life-to-date: $ 0.3 M
In-service Date: 2016



This project consists of building one additional single-circuit 500 kV line on an existing corridor from Sudbury to the Greater Toronto Area via Barrie. Overall, it will increase capacity by 1,700 MW.

Letters have been sent to all potentially affected First Nations and Métis communities, and presentations were made to most communities to introduce them to the project. Technical alternatives have been evaluated and communicated to E&CS, along with preliminary specifications.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

No milestones planned for February 2010

Sudbury x Algoma Area *(Hanmer x Mississagi)*

Budget (Development): $ 5.8 M
Budget (Capital): $ 459.4 M
Expenditures Life-to-date: $ 0.1 M
In-service Date: 2014



This project consists of building a second 500 kV line from Sudbury to the Algoma Area on an existing corridor. The new line will increase the electricity transfer capability by approximately 1,300 MW assuming that the existing 230 kV line is also converted to operation at 500 kV.

Letters have been sent to all potentially affected First Nations and Métis communities, and presentations were made to most communities to introduce them to the project. Technical alternatives have been evaluated and communicated to E&CS, along with preliminary specifications.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

No milestones planned for February 2010

East-West Transmission Tie *(Nipigon x Wawa)*

Budget (Development): $ 12.1 M
Budget (Capital): $ 511.2 M
Expenditures Life-to-date: $ 0.1 M
In-service Date: 2016



To accommodate interest and opportunities in renewable generation in Northwestern Ontario, a new 300km double-circuit 230kV transmission line is required from Wawa TS to Nipigon SS. The new line is expected to parallel the existing transmission corridor between Lakehead and Wawa. The project will increase the Northwest to Southern Ontario transfer capability by approximately 300 MW.

Letters have been sent to all potentially affected First Nations and Métis communities, and presentations were made to most communities to introduce them to the project. Technical alternatives have been evaluated and communicated to E&CS, along with preliminary specifications.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

No milestones planned for February 2010

Northwest Transmission Expansion *(Pickle Lake x Nipigon)*

Budget (Development): $ 21.7 M
Budget (Capital): $ 425.0 M
Expenditures Life-to-date: $ 1.6 M
In-service Date: 2014



To incorporate hydroelectric and wind projects in the Lake Nipigon area, and to enable economic growth through increased capacity and reliability, a new 430km single circuit 230kV transmission line is needed from the Nipigon area to the Pickle Lake area. The line will accommodate up to 400 MW of renewable generation.

Hydro One has conducted a number of First Nations and Métis engagement sessions, and has contacted various mining industry stakeholders to generate interest in the project and feedback that will be useful in the planning process.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *2*
Year-to-date Completed Milestones: *2*

Milestones Planned and Completed in February 2010

Send Environmental Assessment Terms of Reference to the Ministry of the Environment and the Ontario Ministry of Natural Resources for informal feedback.

Manitoulin Island Enabler

Budget (Development): $ 7.5 M
Budget (Capital): $ 169.4 M
Expenditures Life-to-date: $ 0.2 M
In-service Date: 2015



The OPA has identified Manitoulin Island as one of a number of areas with substantial renewable development potential. The enabler line will accommodate up to 500 MW of wind generation on the island via a new 230kV single-circuit transmission line approximately 80 km in length. The actual length and the terminal points will be determined on the basis of the Feed-in-Tariff program results.

Letters have been sent to all potentially affected First Nations and Métis communities and presentations were made to most communities to introduce them to the project.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *4*
Year-to-date Completed Milestones: *4*

Milestones Planned and Completed in February 2010
Complete scope of work
Conceptual scopes sent to E&CS

Goderich Enabler

Budget (Development): $ 5.0 M
Budget (Capital): $ 114.8 M
Expenditures Life-to-date: $ 0.1 M
In-service Date: 2014



The OPA has identified Goderich as one of a number of areas with substantial renewable development potential. Based on the latest information received from the OPA regarding the possible location of the renewable generator proponents, two main options are under consideration. Plans are subject to change as further information is provided by the OPA and as the environmental assessment and preliminary engineering work is carried out.

Meetings with the OPA have revealed that there is significant generator interest in this area, and that the Goderich Enabler Line reference plan may need to be expanded to accommodate their capacities and locations.

Cost: G No issues
Schedule: G No issues
Issues: G No issues

Year-to-date Targeted Milestones: *2*
Year-to-date Completed Milestones: *2*

Milestones Planned and Completed in February 2010
Complete scope of work

West of London Transmission Expansion



Budget (Development):	$ 22.7 M
Budget (Capital):	$ 706.3 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2017

Hydro One has begun planning to identify transmission solutions that accommodate the significant interest in wind generation development in the area west of London. The OPA has advised Hydro One that approximately 1,600 MW of FIT applications were received for South Western Ontario, west of London. The available transmission capacity in that area is about 500 MW. This project will be designed to accommodate as much of that as possible. The reference plan for the project currently involves the construction of three single-circuit 500kV or 230kV transmission lines. In view of the power system connectivity and the land use profile in the region, many options need to be considered.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Year-to-date Targeted Milestones: *3*
Year-to-date Completed Milestones: *3*

Milestones Planned and Completed in February 2010
Complete OPA Engagement Meeting (Identify need, timing, and scale)
Complete scope of work
Conceptual scopes sent to E&CS

HYDRO ONE NETWORKS INC.

Programs & Projects Status

OM&A and Capital Summary — **March 2010**

($ millions)	Year-to-Date 2010 Actual	Year-to-Date Variance to Budget	Year-Over-Year 2009 Actual	Year-Over-Year Year/Year Variance	Year-End Projection	Year-End Variance to Budget[1]
Transmission OM&A						
Lines	4	(1)	4	-	21	(1)
Forestry	6	-	4	2	24	-
Grid Operations	29	5	23	6	135	-
Engineering & Construction	7	4	5	2	26	4
Green Projects	1	(1)	-	1	32	(2)
Asset Mgt. & Other Operations	4	-	5	(1)	22	-
Smart Grid	-	(1)	-	-	4	-
Property Taxes	16	(1)	16	-	69	-
Other Costs	38	(4)	42	(4)	106	1
Total	**105**	**1**	**99**	**6**	**439**	**2**
Transmission Capital						
Lines	12	4	9	3	33	-
Grid Operations	3	-	3	-	28	-
Engineering & Construction	161	26	138	23	758	(171)
Green Projects	1	(1)	-	1	5	(25)
Smart Grid	-	-	-	-	1	(11)
Asset Management	-	-	-	-	2	-
Other Costs	18	4	37	(19)	103	(19)
Total	**195**	**33**	**187**	**8**	**930**	**(226)**

OM&A Programs and Projects

- **Transmission OM&A** year-to-date is essentially on plan. Higher planned and demand corrective stations-related maintenance requirements due to a higher than anticipated volume of work completed, and higher than planned engineering standards development work are largely offset by lower corporate requirements as a result of deferred hirings and other expenditures. Hiring requirements will continue to be managed closely.

  Year-end OM&A is projected to be $2M above plan primarily due to lower overheads capitalized reflecting the capital projection, partially offset by lower corporate costs.

Capital Programs and Projects

- **Transmission Capital** year-to-date is $33M, or 20% higher than plan primarily reflecting timing of expenditures related to transmission sustainment programs, including the spare transformer, wood pole replacement and protection and control replacement programs due to timing of progress payments and material deliveries. The ramp up in program spending is, in part, facilitated by having multi-year program releases in place. The variance is also contributed by the carryover project spend for the perimeter security project into 2010, as well as higher refurbishment and replacement of end-of-life equipment. Partially offsetting the variance is lower requirements for the Hurontario SS to Jim Yarrow SS project as it is nearing completion under budget.

  Capital is $8M, or 4% higher than 2009 primarily due to higher development lines and stations expenditures for major off-coal projects, including Bruce to Milton, Porcupine TS and Kirkland TS, Nobel SS, and static var compensator installations at Nanticoke TS and Detweiler TS, partially offset by lower expenditures on the South Western Ontario Capacitor Banks and Cherrywood TS to Claireville TS projects consistent with their 2010 in-service dates, as well as lower Cornerstone project expenditures as a result of the project's go-live in mid-2009. Also contributing to the variance are higher expenditures related to transmission sustainment programs, including the breaker installation, wood pole replacement, and protection and control replacement programs.

Year-end capital is projected to be $226M, or 20%, lower than plan driven primarily by the status of various discussions with the OPA regarding transmission project needs and priorities, lower refurbishment and replacement work and load customer connections resulting from deferred timing, and development projects anticipated to be completed lower than budget, partially offset by the early ramp-up of program work.

Summary March 2010

Legend:

SPI: Schedule Performance Index
Indicator of 1 means project is on schedule.
Greater than 1 means project is ahead of schedule.
Less than 1 means project is behind schedule.

CPI: Cost Performance Index
Indicator of 1 means project cost is on budget.
Greater than 1 means project cost is less than budget.
Less than 1 means project cost is higher than budget.

GTA West Transmission Reinforcement



Approved Budget:	$47.6 M
Contingency:	$3.1 M
Expenditures Life-to-date:	$44.0 M
Current Projection at Completion:	$44.6 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	May 2010

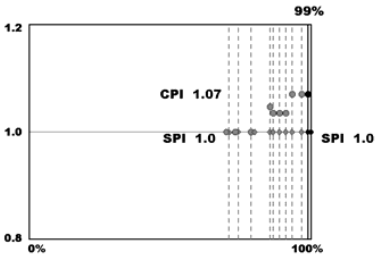
This project consists of constructing the new Hurontario SS and a 4 km line extension from Cardiff TS to Hurontario SS.

On February 1, 2010, the project was placed into service. On March 7, 2010, civil clean up and landscaping activities commenced and are expected to continue until late May 2010.



Hurontario Lines Construction

Safety:	G	No issues
Cost:	G	Current projection at completion is expected to be $3M below the approved budget due to unused contingency allocated for soil conditions, outage delays and Winter weather work.
Schedule:	G	No issues
Issues:	G	No issues



Hurontario SS to Jim Yarrow TS



Approved Budget:	$42.0 M
Contingency:	$6.0 M
Expenditures Life-to-date:	$27.7 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	Jun 2010

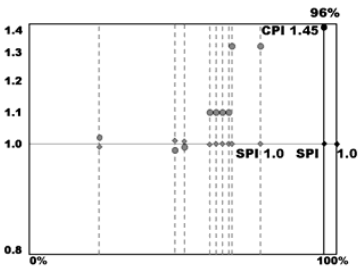
This project consists of constructing two 230kV underground cable circuits from Hurontario SS to Jim Yarrow Municipal TS to address load increases in the Western Brampton area.

On March 7, 2010, commissioning activities were completed and the project went into service. Cleanup work continues and is expected to be completed in June 2010.



R19T & R21T Pot Heads at Hurontario SS End Complete

Safety:	G	No issues
Cost:	G	Projection at completion is now $13M below the approved budget due to contingency funds not required for risks, including poor underground conditions, construction methods for underground installations and contract delays.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract for cable design, supply and install awarded to Black & McDonald.



Bruce to Milton



Approved Budget (Full Release):	$695.5 M
Contingency:	$29.3 M
Expenditures Life-to-date:	$248.4 M
Current Projection at Completion:	$695.5 M
Approved In-service Date:	Dec 2012

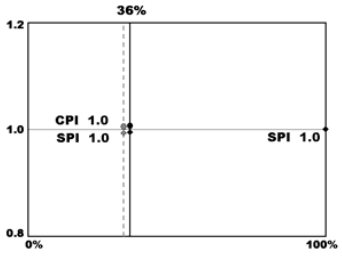
This project will construct a 500kV double-circuit line between the Bruce Nuclear Complex and the Milton SS to increase transfer capabilities for future renewable generation increases coming out of the Bruce area.

As of March 31, 2010, Hydro One reached agreements with 262 properties out of 350 to voluntarily acquire necessary land rights. Approximately 200 of these option agreements have been exercised to date. The tender for right-of-way clearing has been awarded and work commenced mid-March 2010. To date, approximately 5 of 280 hectares have been completed. Tenders for road material and rebar have been awarded. Other tenders for civil construction material are being reviewed. On April 28, 2010, road construction commenced. The Niagara Escarpment Commission (NEC) hearing commenced January 26, 2010 and concluded its cross examination on March 24, 2010. A decision is expected in late May 2010.

Safety:	G	No issues
Cost:	G	The budget received Board approval on February 11, 2010 and assumes a favourable decision by the OEB regarding construction work in progress charges.
Schedule:	G	No issues
Issues:	Y	NEC Approvals and Land Acquisition
Key Suppliers:	G	500kV line construction contract awarded to Valard Construction Ltd and contract for right-of-way clearing awarded to Winona Wood Ltd.



Clearing West of Highway 21



Milton SS Reconfiguration



Approved Budget:	$28.7 M
Contingency:	$2.0 M
Expenditures Life-to-date:	$21.3 M
Current Projection at Completion:	$28.7 M
Approved In-service Date:	Dec 2010

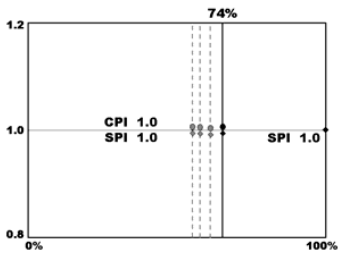
This project includes the installation of additional 500kV station equipment to reconfigure the switching station at Milton in order to reduce or eliminate the need to curtail generation during forced and planned outages during construction for the Bruce to Milton project.

Construction is progressing and civil work related to gas insulated switchgear (GIS) installation continues.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	ABB Inc. is the supplier of gas-insulated switchgear.



Existing GIS Prior to Extension



Pickering NGS – PCT System Replacement



Approved Budget:	$27.5 M
Contingency:	$2.8 M
Expenditures Life-to-date:	$19.5 M
Current Projection at Completion:	$21.3 M
Approved In-service Date:	30 Jun 2010

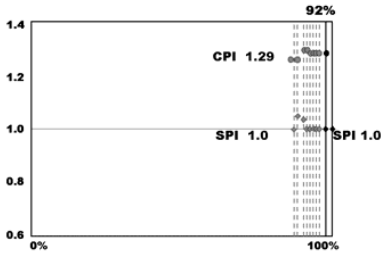
This project includes the replacement of the relay building at Hydro One's Pickering A switchyard to maintain the reliability and safety of the power system.

Prerequisite work for the 2010 outage continues on schedule. On April 13, 2010, remaining cutover work for two units commenced and is expected to be completed by the end of June 2010.

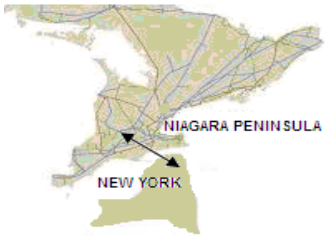
Safety:	G	No issues
Cost:	G	Project completion is projected to be approximately $6M below budget due to unused contingency allocated for risks around access to the site and uncertainty around OPG/Hydro One connection points, which were mitigated**;** and lower than planned interest charges resulting from an earlier than planned in-service of equipment.
Schedule:	G	No issues
Issues:	G	No issues



Standardized Protection Modules at Pickering SS



Niagara System Reinforcement



Approved Budget:	$116.0 M
Expenditures Life-to-date:	$98.1 M
Current Projection at Completion:	TBD
Approved In-service Date:	TBD

This project improves the ability of Hydro One's transmission system to deliver generation available in the Niagara peninsula and improves its ability to deliver imports from New York to loads in the rest of Ontario.

Work stopped due to First Nations protest in Caledonia.

Safety:	G	No issues
Cost:	G	Under budget
Schedule:	R	Work stopped due to First Nations protest in Caledonia.
Issues:	R	First Nations land claim issue.



Niagara 230kV Line

Claireville TS to Cherrywood TS



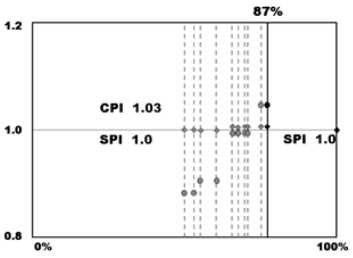
Approved Budget:	$117.3 M
Contingency:	$7.5 M
Expenditures Life-to-date:	$99.3 M
Current Projection at Completion:	$114.3 M
Approved In-service Date:	Dec 2010



Claireville TS: New 500kV Gas Insulated Line Exit

This project includes the reconfiguration and termination of existing lines to provide two additional 500kV lines between Claireville TS and Cherrywood TS, which will accommodate the increased power flows due to the new Hydro-Québec interconnection and the Portlands generating station.

Construction activities continue on schedule for two remaining circuit breaker installations at Cherrywood TS, including equipment installation and gas-insulated line installation. Construction activities continue on schedule for three circuit breaker installations at Claireville TS.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget due to an earlier than planned in-service of equipment resulting in reduced interest charges.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) AREVA is the supplier of switches at Cherrywood TS and Claireville TS. 2) ABB is the supplier for circuit breakers and CGIT is the supplier of gas-insulated buses at Cherrywood TS. 3) ABB is the supplier for gas insulated switchgear at Claireville TS.

Lakehead TS – Install SVC



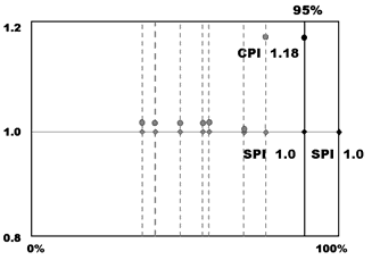
Approved Budget:	$22.5 M
Contingency:	$2.7 M
Expenditures Life-to-date:	$18.2 M
Current Projection at Completion:	$19.1 M
Approved In-service Date:	1 Dec 2009
Projected Completion Date:	Jul 2010



Lakehead SVC

This project includes the installation of a static var compensator (SVC) at Lakehead TS, to replace a synchronous condenser and to mitigate risks of unacceptable voltages.

On November 28, 2009, the SVC was placed into service as scheduled. A conditional Noise Certificate of Approval (C of A) has been issued to allow the operation of the SVC until the end of 2010. In February 2010, analysis of the noise levels was completed. Based on field measurements, it was concluded that a noise mitigation wall is not required.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget primarily due to contingency funds not required for noise mitigation.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract awarded to Siemens Canada Inc.

Nobel SS: Install Series Capacitor Banks



Approved Budget:	$46.4 M
Contingency:	$3.7 M
Expenditures Life-to-date:	$30.8 M
Current Projection at Completion:	$46.4 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Aug 2010

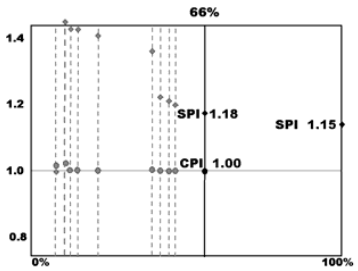


Nobel Station

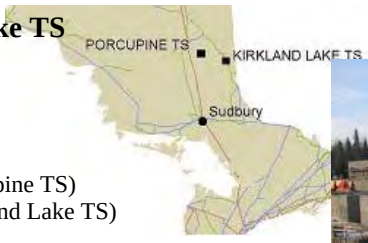
This project includes the installation of two series capacitor banks at Nobel SS, which will increase power transfer capabilities along the transmission corridors North and South of Sudbury needed to facilitate the incorporation of renewable generation in Northern Ontario.

Vendor construction activities continue with foundation and platform work.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Projected in-service date is expected to occur ahead of schedule.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract, including design, manufacturing equipment, factory inspection and testing, delivery, installation and commissioning awarded to ABB.



Install SVCs at Porcupine TS and Kirkland Lake TS



Approved Budget:	$109.0 M
Contingency:	$10.1 M
Expenditures Life-to-date:	$36.3 M
Current Projection at Completion:	$109.0 M
Approved In-service Date:	Nov 2010 (Porcupine TS)
Projected In-service Date:	Mar 2011 (Kirkland Lake TS)

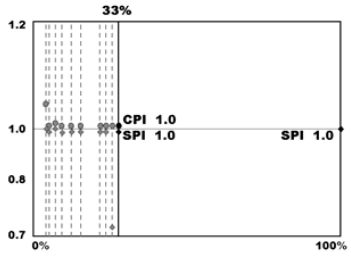


Porcupine SVC Site – Civil Works

This project includes the installation of two SVCs at Porcupine TS and Kirkland Lake TS, which will further increase power transfer capabilities North of Sudbury for renewable generation in Northern Ontario.

The vendor has requested a revised in-service date in March 2011 due to a delay in receiving the drainage C of A, resulting in late mobilization, and contaminated soil at Kirkland Lake TS. Construction activities continue on schedule for the turnkey contractor at Porcupine TS.

Safety:	G	No issues
Cost:	Y	The cost impact of the delay at Kirkland Lake is being reviewed.
Schedule:	G	Projected in-service date for Kirkland Lake TS is now March 2011 due to contaminated soil and receipt of C of A. This delay has been determined to be non-system impactive.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract including design, manufacturing equipment, factory inspection and testing, delivery, installation, and commissioning awarded to ABB for Kirkland Lake and to AREVA for Porcupine.



Woodstock Area Transmission Reinforcement



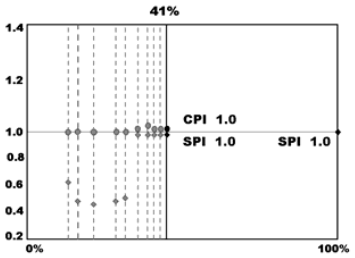
Approved Budget:	$71.6 M
Contingency:	$9.3 M
Expenditures Life-to-date:	$29.7 M
Current Projection at Completion:	$71.6 M
Approved In-service Date:	Apr 2010
Current projected In-service Date:	Apr 2011



Woodstock Lines Construction

This project includes the construction of Karn TS, a 230kV double-circuit line between Ingersoll TS and Karn TS, and a 230kV double-circuit line between Karn TS and Woodstock TS.

Construction on the permanent line between Karn and Ingersol is ongoing. Station construction at Karn TS also continues on schedule.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The approved in-service date for the completion of the permanent transmission line and completion of the system has been moved to April 2011 due to land acquisition delays. The delay has been determined to be non-business impactive.
Issues:	G	All sites have been cleared by the archaeological surveys.

Goreway TS – Add Transformation Capacity



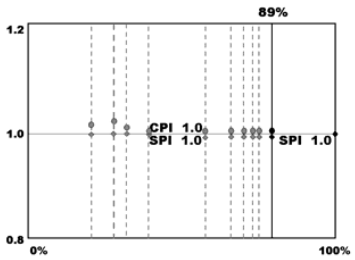
Approved Budget:	$24.5 M
Contingency:	$1.3 M
Expenditures Life-to-date:	$21.9 M
Current Projection at Completion:	$22.9 M
Approved In-service Date:	01 May 2010
Current Projected In-service Date:	24 May 2010



Goreway 230kV Disconnect Switches

This project adds additional transformation capacity at Goreway TS to meet the growing needs of Hydro One Brampton.

Commissioning activities and civil electrical construction continue on schedule.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $1.5M below the approved budget due to contingency funds not required.
Schedule:	G	In-service date has been delayed by three weeks to accommodate our customers. The delay has been determined as non-system impactive.
Issues:	G	No issues
Key Suppliers:	G	Hyundai Canada Inc. is the vendor for transformers; Virelec Ltd. is the supplier for the protection, control and telecommunication in a box building; and Mitsubishi is the vendor for 28kV circuit breakers.

Nanticoke Breaker Replacement



Approved Budget:	$29.0 M
Contingency:	$2.9 M
Expenditures Life-to-date:	$27.0 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	July 2011

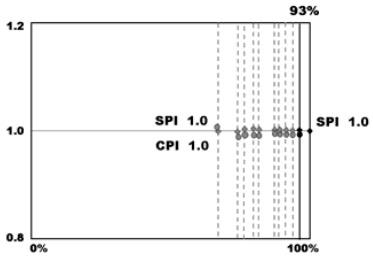
This project replaces circuit breakers and other equipment that have reached their end-of-life to reduce operational risks, maintenance and improve reliability.

Construction is continuing on schedule with foundation and electrical work. Breaker replacements continue on schedule with 11 of 14 breakers installed. Working within the constraints of OPG's outage availability, the final breaker is expected to go into service in 2011.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Nanticoke Circuit Breakers



Install Capacitor Banks in South Western Ontario



Approved Budget:	$62.0 M
Contingency:	$8.0 M
Expenditures Life-to-date:	$56.6 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	31 Oct 2009
Current Projected In-service Date:	June 2010

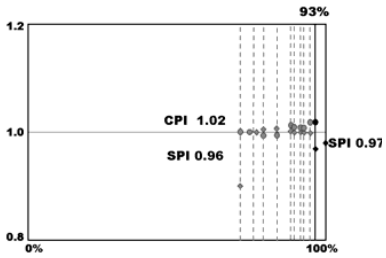
The OPA recommended that Hydro One install seven 230kV shunt capacitor banks at three transformer stations in South Western Ontario. The capacitors are a near term measure to expand transmission capacity in order to enable delivery of additional generation from the Bruce area.

Construction and commissioning activities continue at Buchanan TS. The final capacitor bank at Buchanan TS is projected to go into service in June 2010.

Safety:	G	No issues.
Cost:	G	No issues
Schedule:	G	The in-service date of the final capacitor bank at Buchanan TS is now June 2010 due to technical resources required to accommodate higher business impactive projects. This change has been determined to be non-business impactive.
Issues:	G	No issues
Key Suppliers:	G	ABB is the vendor for capacitor banks.



Capacitor Bank at Middleport TS



Increase Capacity at Vansickle TS



Approved Budget:	$16.6 M
Contingency:	$1.9 M
Expenditures Life-to-date:	$7.4 M
Current Projection at Completion:	$16.8 M
Approved In-service Date:	30 Nov 2010

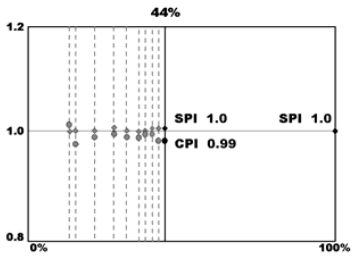
Horizon Utilities has requested the capacity of Vansickle TS be expanded to supply new loads in St. Catharines as a result of projected increases in load growth.

Construction activities continue. The two transformers are installed and are taking load.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	Y	Vendor delay of switchgear delivery is being closely monitored. Efforts are underway to help mitigate risk of delay in in-service.
Issues:	Y	Switchgear delivery delays
Key Suppliers:	G	General Switchgear & Controls Ltd. is the vendor for switchgear, and Hyundai Canada Inc. is the vendor for transformers.



Sound Barriers Complete



Burlington 115kV Switchyard Reconstruction



Approved Budget:	$61.0 M
Contingency:	$5.5 M
Expenditures Life-to-date:	$9.2 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	Summer 2012

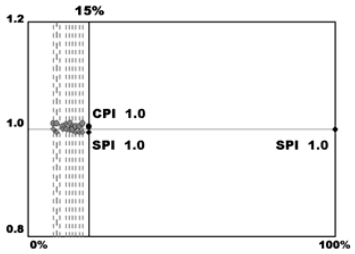
Multiple Burlington projects have been merged into a single investment to build a new 115kV switchyard on vacant property at Burlington TS.

Engineering design work continues, and civil construction continues with grading and foundation work. Building foundations are complete. On March 5, 2010, steel structure assembly commenced.

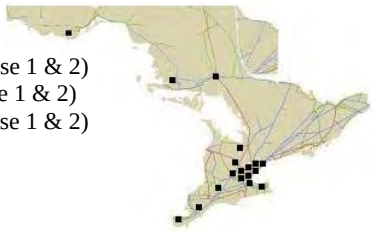
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Schedule is tight
Issues:	G	No issues
Key Suppliers:	G	Engineering, procurement and install contract awarded to PCR Contractors Inc. for 115 kV relay building.



Location of New North Yard at Burlington



Mitigate Reliability Issues of HV Shunt Capacitor Installations – Phase Two



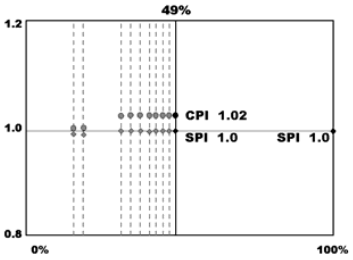
Approved Budget:	$46.7 M (Phase 1 & 2)
Contingency:	$4.7 M (Phase 1 & 2)
Expenditures Life-to-date:	$22.4 M (Phase 1 & 2)
Current Projection at Completion:	$45.8 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Dec 2011



Shunt Capacitor – Burlington TS

Phase Two addresses the outstanding risks associated with Hydro One's fleet of shunt capacitor bank installations by equipping them with surge capacitors among other activities.

Construction activities continue at Richview TS and are expected to be completed August 2010. On April 6, 2010, construction commenced at Burlington TS. These are the first two of 18 stations, which are on schedule to be complete by December 2011.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The project schedule has been extended by one year to December 2011 to accommodate outage considerations. This delay has been determined to be non-system impactive.
Issues:	G	No issues

Churchill Meadows TS: Build New DESN



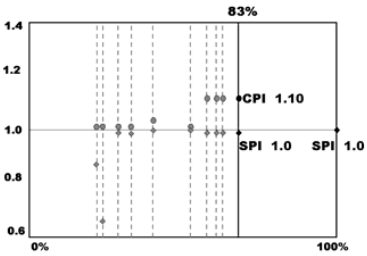
Approved Budget:	$31.0 M
Contingency:	$2.3 M
Expenditures Life-to-date:	$23.6 M
Current Projection at Completion:	$28.3 M
Approved In-service Date:	Jun 2010
Current Projected In-service Date:	Aug 2010



230 kV Yard and Station Line Entrance Structure

This project includes the construction of Churchill Meadows TS to relieve overloads at existing Hydro One stations in South West GTA and to meet future load growth.

Construction activities continue on schedule.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The LDC has accepted the project delay of three months, from early June to late August 2010, due to drainage C of A requirements.
Issues:	G	The first transformer delivery will be three months delayed; however, the schedule had been revised and was able to accommodate this.

P3S & P4S Line Refurbishment and Equipment Replacement



Approved Budget:	$21.1 M
Contingency:	$1.6 M
Expenditures Life-to-date:	$10.0 M
Current Projection at Completion:	$23.8 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	May 2011

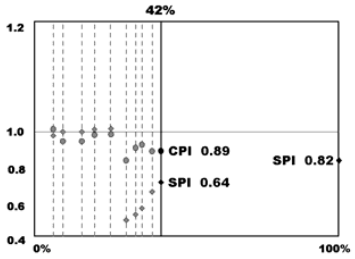
This project replaces end-of-life equipment and components within sections of circuits P3S and P4S between Port Hope Junction and Sidney TS.

Replacement of the wood poles on P4S was 7% higher than identified in the Asset Condition Assessment and 50% higher for P3S.

Safety:	G	No issues
Cost:	R	An IROV has been submitted to address the additional cost and delay to the schedule associated with this increase in scope. The unfunded work will not be executed until approved.
Schedule:	R	The projected in-service date is now May 2011. An IROV was submitted.
Issues:	G	No issues



Stringing the P4S Circuit



Longlac TS



Approved Budget:	$20.5 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$7.8 M
Current Projection at Completion:	$20.5 M
Approved In-service Date:	July 2011

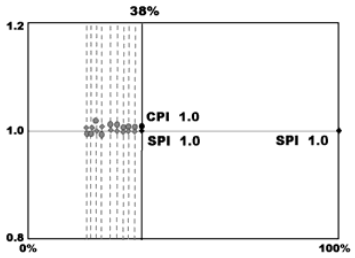
This project replaces end-of-life equipment at Longlac TS and provides additional transformation capacity to enable future connection of embedded generators and increase the station's reliability.

Engineering, procurement and construction activities continue on schedule. Construction is in progress with concrete foundations, grounding and steel structures.

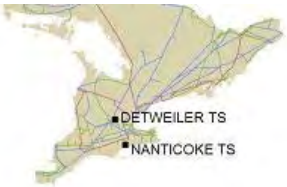
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Foundation and Spill Containment



Install SVCs at Detweiler TS and Nanticoke TS



Approved Budget:	$165.0 M
Contingency:	$28.8 M
Expenditures Life-to-date:	$9.7 M
Current Projection at Completion:	$165.0 M
Approved In-service Date:	May 2011

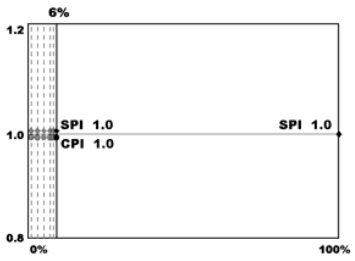
This project includes the installation of SVCs at Detweiler TS and Nanticoke TS to support increased generation from the Bruce nuclear plant and wind generation from the Bruce area as a short term measure prior to the in-service of the Bruce to Milton 500kV line.



Nanticoke TS

On February 17, 2010, Hydro One construction commenced at Nanticoke TS. On April 6, 2010, vendor construction of the SVC commenced.

Vendor engineering activities continue at Detweiler TS. Construction of the SVC is expected to begin in mid-May 2010.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) EPC contract for the Detweiler SVC awarded to ABB. 2) EPC contract for the Nanticoke SVC awarded to Siemens Canada Inc. and ABB is the vendor for 500kV breakers.

Install Four Shunt Capacitor Banks at Porcupine TS, Hanmer TS and Essa TS

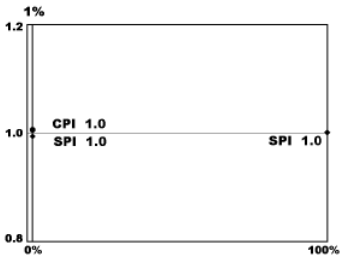
Approved Budget:	$26.4 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$0.2 M
Current Projection at Completion:	$26.4 M
Approved In-service Date:	Dec 2011

This project will add voltage support at: Essa TS to increase the transfer capability of the flow south interface so that all existing and committed generating facilities both north and west of Sudbury can be accommodated; Hanmer TS to increase the north-south transfer, and; Porcupine TS as part of the northeast reinforcement to accommodate new generation development in northern Ontario.



Existing Capacitor Bank at Essa TS

Procurement of major equipment and procurement of an engineering consultant is in progress.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Perimeter Security Upgrade for Stations

Approved Budget:	$30.5 M
Expenditures Life-to-date:	$27.4 M
Current Projection at Completion:	TBD
Approved In-service Date:	Nov 2009
Current Projected In-service Date:	TBD

Perimeter security will be upgraded at 45 transmission stations in the GTA as part of Hydro One's copper theft prevention strategy. Security will be set up around the station perimeter and at all main gates. Razor mesh and security systems have been installed at 21 stations so far. Work is currently underway at eight additional stations.

Safety:	G	No issues
Cost:	R	An IROV is being prepared to reflect contract change orders including grounding and bonding. Full connectivity of security systems are also under consideration.
Schedule:	R	An IROV is being prepared for a revised in-service date due to contract change orders and training required for new technology.
Issues:	G	Fence bonding and grounding methods have been reviewed.
Key Suppliers:	G	Turnkey contract for the supply and install of razor mesh fencing and intrusion and infrared detection awarded to Safeguards of Canada Inc.



Razor Mesh Fencing

Major Green Projects Development

In September 2009, the Government of Ontario asked Hydro One to proceed with twenty green transmission projects in support of the Green Energy Act. From these twenty, seven projects have been given priority by the OPA. For these projects, a set of critical milestone activities that are under Hydro One's control will be identified.

Summary — March 2010

North-South Transmission Expansion *(Sudbury x Barrie x GTA)*



Budget (Development):	$ 18.2 M
Budget (Capital):	$ 884.3 M
Expenditures Life-to-date:	$ 0.3 M
In-service Date:	2016

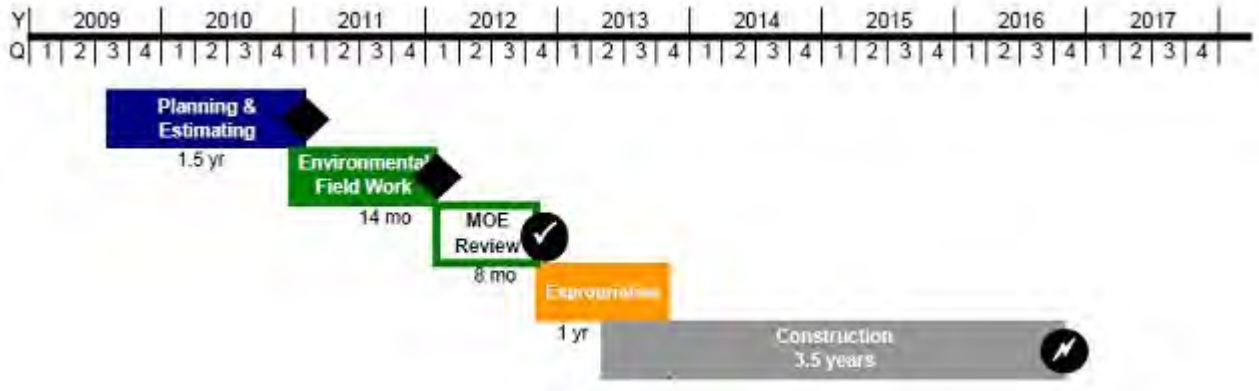
This project consists of building one additional single-circuit 500 kV line on an existing corridor from Sudbury to the Greater Toronto Area via Barrie. Overall, it will increase capacity by 1,700 MW.

Discussions with the OPA about the need for the project are ongoing. Pre-consultations with municipal officials have been initiated.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 4
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for March 2010	



Sudbury x Algoma Area *(Hanmer x Mississagi)*



Budget (Development):	$ 5.8 M
Budget (Capital):	$ 459.4 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2014

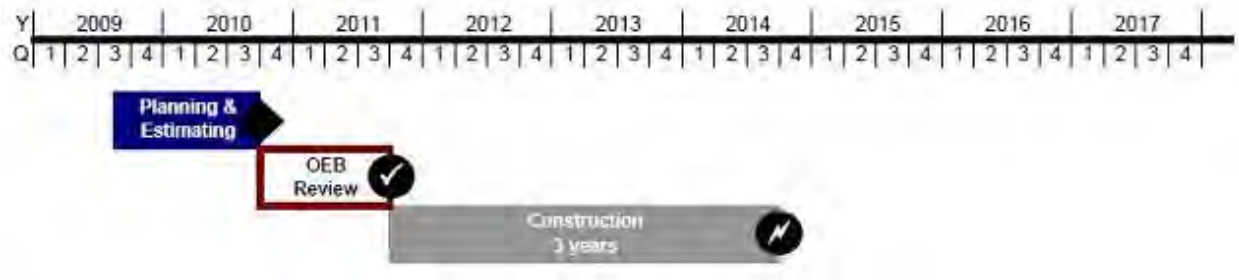
This project consists of building a second 500 kV line from Sudbury to the Algoma Area on an existing corridor. The new line will increase the electricity transfer capability by approximately 1,300 MW assuming that the existing 230 kV line is also converted to operation at 500 kV.

Discussions with the OPA about the need for the project are ongoing. The original schedule targeted that by March 2010, these discussions would be finalized and a reference plan would be selected. The OPA is not prepared to provide input to select a reference plan at this time and advises that the consultation activities for this project be placed on hold. New schedules are under development for this project.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: *6*
Achieved: *4*

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
Milestones planned for March 2010 were not met due to OPA re-prioritization of north-central green projects.	



Goderich Enabler



Budget (Development):	$ 5.0 M
Budget (Capital):	$ 114.8 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2014

The OPA has identified Goderich as one of a number of areas with substantial renewable development potential. Based on the latest information received from the OPA regarding the possible location of the renewable generator proponents, two main options are under consideration. Plans are subject to change as further information is provided by the OPA and as the environmental assessment and preliminary engineering work is carried out.

The scope of work was completed in early March. It has been evaluated and estimates were generated for the development work. This estimate is higher than the funding currently available for development of this project in the business plan. While the budgeting aspects are being sorted out, we will continue to evaluate the options estimates for the project. Additional information on the size, type, and locations of potential generators is required to finalize the scope of work for the project. The OPA is not expected to provide this information until August 2010.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 4
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
OPA Engagement – Discuss Project Need and Timing	January
Scope of Work Completed	February
Scope of Work for Options sent to E&CS	March
Development Work Cost Estimates Completed	March



East-West Transmission Tie *(Nipigon x Wawa)*



Budget (Development):	$ 12.1 M
Budget (Capital):	$ 511.2 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2016

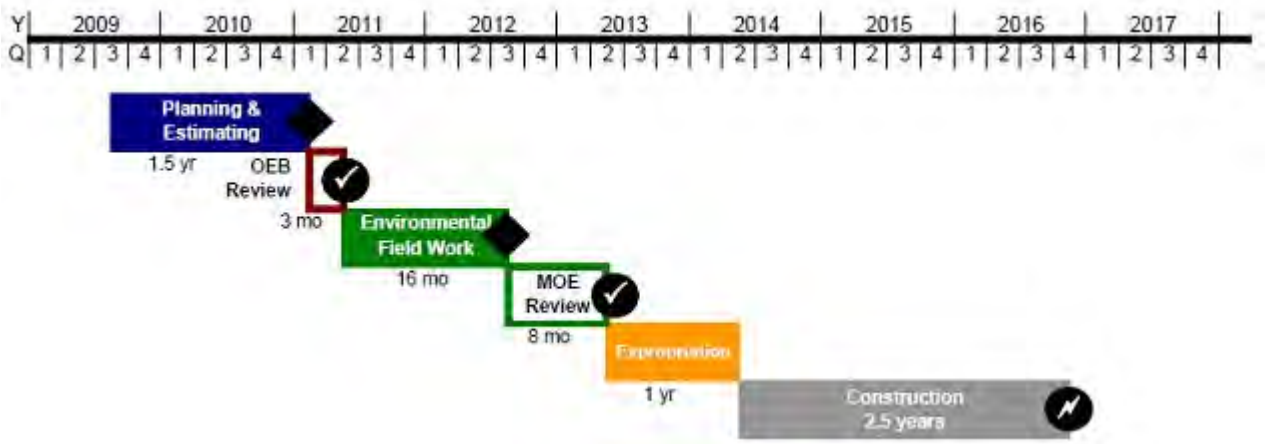
To accommodate interest and opportunities in renewable generation in Northwestern Ontario, a new 300km double-circuit 230kV transmission line is required from Wawa TS to Nipigon SS. The new line is expected to parallel the existing transmission corridor between Lakehead and Wawa. The project will increase the Northwest to Southern Ontario transfer capability by approximately 300 MW.

Discussions with the OPA about the need for the project are ongoing. The OPA has indicated that this project is high priority.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Year-to-date Milestones:
Targeted: 4
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for March 2010	



Northwest Transmission Expansion *(Pickle Lake x Nipigon)*



Budget (Development):	$ 21.7 M
Budget (Capital):	$ 425.0 M
Expenditures Life-to-date:	$ 1.7 M
In-service Date:	2014

To incorporate hydroelectric and wind projects in the Lake Nipigon area, and to enable economic growth through increased capacity and reliability, a new 430km single circuit 230kV transmission line is needed from the Nipigon area to the Pickle Lake area. The line will accommodate up to 400 MW of renewable generation.

Hydro One is currently preparing the Section 92 leave to construct application for the project. The Company continues to engage in meetings with First Nations communities to discuss the project status and protocol agreements.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Year-to-date Milestones:
Targeted: 2
Achieved: 2

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
Send Environmental Assessment Terms of Reference to the Ministry of the Environment (MOE) and the Ontario Ministry of Natural Resources (MNR) for informal feedback	February
No milestones planned for March 2010	



Manitoulin Island Enabler



Budget (Development):	$ 7.5 M
Budget (Capital):	$ 169.4 M
Expenditures Life-to-date:	$ 0.2 M
In-service Date:	2015

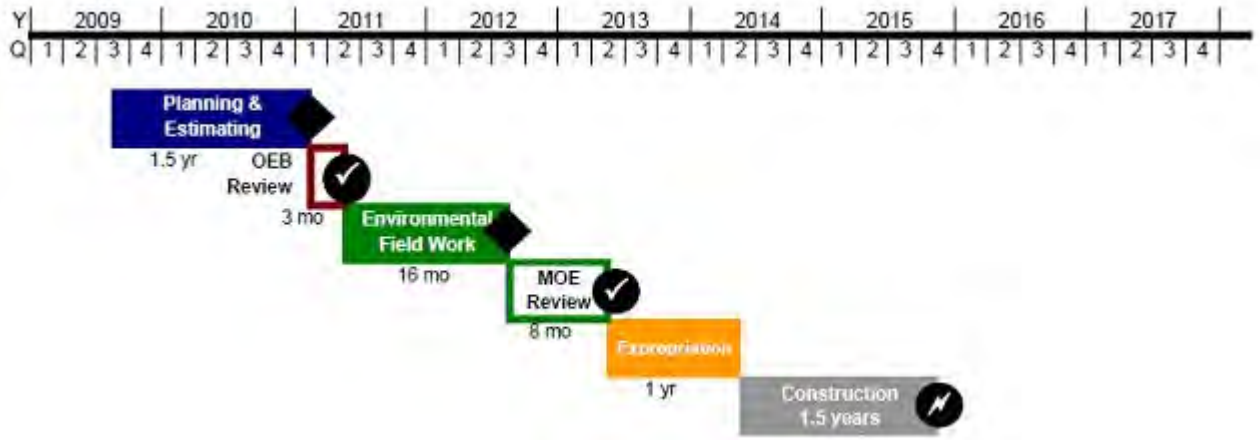
The OPA has identified Manitoulin Island as one of a number of areas with substantial renewable development potential. The enabler line will accommodate up to 500 MW of wind generation on the island via a new 230kV single-circuit transmission line approximately 80 km in length. The actual length and the terminal points will be determined on the basis of the Feed-in-Tariff (FIT) program results.

Discussions with the OPA about the need for the project are ongoing. The original schedule targeted that by March 2010, a study area will be defined for the project. The OPA is not prepared to provide input to select a study area at this time and advises that the pre-consultation activities for this project be placed on hold. New schedules are under development for this project.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Year-to-date Milestones:
Targeted: 5
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Milestones planned for March 2010 were not met due to OPA re-prioritization of north-central green projects.	



West of London Transmission Expansion



Budget (Development):	$ 22.7 M
Budget (Capital):	$ 706.3 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2017

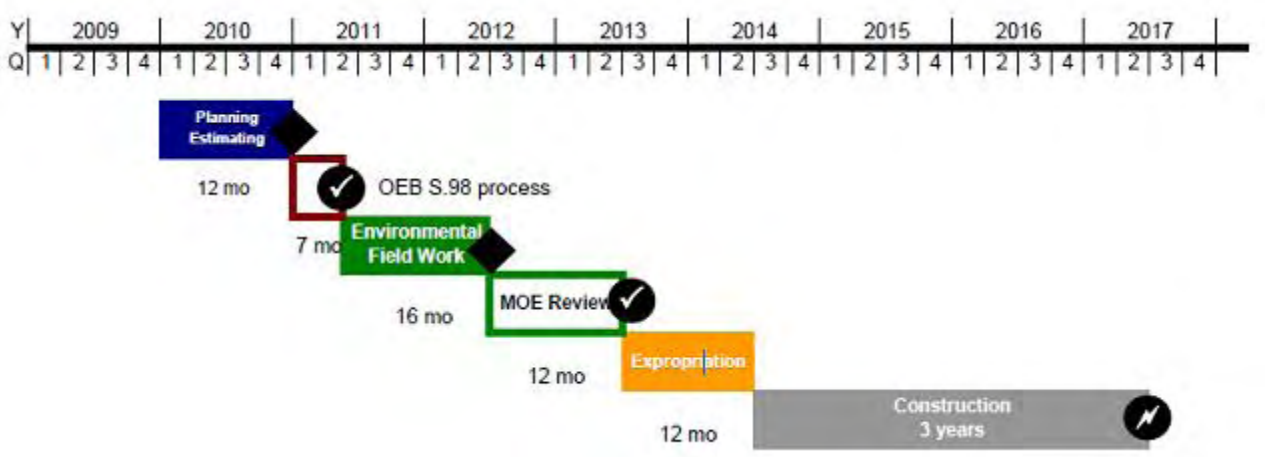
Hydro One has begun planning to identify transmission solutions that accommodate the significant interest in wind generation development in the area west of London. The OPA has advised Hydro One that approximately 1,600 MW of FIT applications were received for South Western Ontario, west of London. The available transmission capacity in that area is about 500 MW. This project will be designed to accommodate as much of that as possible. The reference plan for the project currently involves the construction of three single-circuit 500kV or 230kV transmission lines. In view of the power system connectivity and the land use profile in the region, many options need to be considered.

The scope of development work has been reviewed and the estimates for the completion of this work have been communicated. The development teams are engaged in the risk assessment and fact finding exercise targeted for completion in May. This exercise involves reviewing corridor options in the study area defined by environmental services.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues

Year-to-date Milestones:
Targeted: 5
Achieved: 5

2010 Project Milestones Achieved Year-to-Date	
Complete OPA Engagement Meeting (Identify need, timing, and scale)	February
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Development Work Cost Estimates Completed	March
Study Area Definition Completed	March



HYDRO ONE NETWORKS INC.

Programs & Projects Status

OM&A and Capital Summary — **April 2010**

($ millions)	Year-to-Date 2010 Actual	Year-to-Date Variance to Feb-approved Budget[1]	Year-Over-Year 2009 Actual	Year-Over-Year Year/Year Variance	Year-End May-approved Budget[2]	Year-End Variance to Budget
Transmission OM&A						
Lines	5	(2)	6	(1)	21	-
Forestry	8	-	5	3	24	-
Grid Operations	39	4	28	11	135	-
Engineering & Construction	8	4	7	1	26	-
Green Projects	2	(4)	-	2	32	-
Asset Mgt. & Other Operations	5	(2)	6	(1)	22	-
Smart Grid	-	(1)	-	-	4	-
Property Taxes	22	(1)	22	-	69	-
Other Costs	50	(9)	55	(5)	106	-
Total	**139**	**(11)**	**129**	**10**	**439**	**-**
Transmission Capital						
Lines	16	5	14	2	33	-
Grid Operations	5	(1)	4	1	28	-
Engineering & Construction	222	6	199	23	758	-
Green Projects	1	(2)	-	1	5	-
Smart Grid	-	-	-	-	1	-
Asset Management	-	(1)	1	(1)	2	-
Other Costs	26	7	51	(25)	103	-
Total	**270**	**14**	**269**	**1**	**930**	**-**

- **Transmission OM&A** year-to-date is $11M, or 7% lower than plan primarily due to lower corporate requirements associated with deferred hirings and timing of expenditures, lower than planned lines major component maintenance work due to a late start in the work program as resources were focused on wood structure replacement capital work, and lower than planned smart grid expenditures. This is partially offset by higher corrective stations-related maintenance requirements due to a higher than anticipated volume of work completed.

  OM&A is $10M, or 8% higher than 2009 primarily due to higher preventative stations maintenance to support aging infrastructure, particularly on transformers, higher requirements for corrective stations-related maintenance, higher engineering support, increased forestry brush control and line clearing requirements as a result of a larger work program and higher IT expenditures reflecting higher sustainment requirements and supply chain infrastructure enhancements. Partially offsetting the variance is a reallocation of resources in support of the capital work program.

  .

- **Transmission Capital** year-to-date is $14M, or 6% higher than plan primarily reflecting timing of expenditures related to transmission sustainment programs, including the spare transformer, wood pole replacement and protection and control replacement programs due to timing of progress payments and material deliveries. The ramp up in program spending is, in part, facilitated by having multi-year program releases in place. The variance is also contributed by the carryover project spending for the perimeter security project into 2010, as well as higher than planned refurbishment and replacement of end-of-life equipment. Partially offsetting the variance is lower requirements for the Hurontario SS to Jim Yarrow SS project as it is nearing completion under budget, timing of vendor construction mobilization on the installation of static var compensators at Nanticoke TS and Detweiler TS, and lower than planned expenditures on the Porcupine TS and Kirkland Lake TS project due to a decision to delay contractor mobilization as a result of local soil conditions at the Kirkland Lake TS.

  Capital is essentially the same as 2009. Higher development lines and stations expenditures for major off-coal projects, including Bruce to Milton, Porcupine TS and Kirkland Lake TS, Nobel SS, and static var compensator installations at Nanticoke TS and Detweiler TS are largely offset by lower expenditures on the South Western Ontario Capacitor Banks and Cherrywood TS to Claireville TS projects consistent with their 2010 in-service dates, as well as lower Cornerstone project expenditures as a result of the project's go-live in mid-2009. In addition, expenditures incurred to enhance information security at the OGCC are lower compared to 2009 due to the completion of the NERC security project in December 2009. Also contributing to the variance are higher expenditures related to transmission sustainment programs, including the breaker installation, wood pole replacement, and protection and control replacement programs.

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Major Capital Project Status

Summary — April 2010

Legend:

SPI: Schedule Performance Index
Indicator of 1 means project is on schedule.
Greater than 1 means project is ahead of schedule.
Less than 1 means project is behind schedule.

CPI: Cost Performance Index
Indicator of 1 means project cost is on budget.
Greater than 1 means project cost is less than budget.
Less than 1 means project cost is higher than budget.

GTA West Transmission Reinforcement



Approved Budget:	$47.6 M
Contingency:	$3.1 M
Expenditures Life-to-date:	$44.3 M
Current Projection at Completion:	$44.6 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	Jun 2010

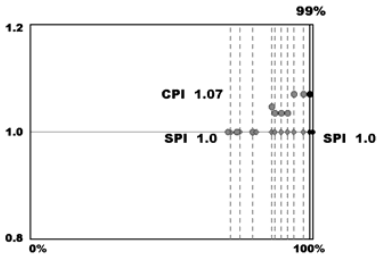
This project consists of constructing the new Hurontario SS and a 4 km line extension from Cardiff TS to Hurontario SS.

On February 1, 2010, the project was placed into service. On April 7, 2010, civil clean up and landscaping activities commenced and are expected to continue until June 2010.

Safety:	G	No issues
Cost:	G	Current projection at completion is expected to be $3M below the approved budget due to unused contingency allocated for soil conditions, outage delays and Winter weather work.
Schedule:	G	No issues
Issues:	G	No issues



Hurontario Lines Construction



Hurontario SS to Jim Yarrow TS



Approved Budget:	$42.0 M
Contingency:	$6.0 M
Expenditures Life-to-date:	$27.8 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	Feb 2010
Projected Completion Date:	Jun 2010

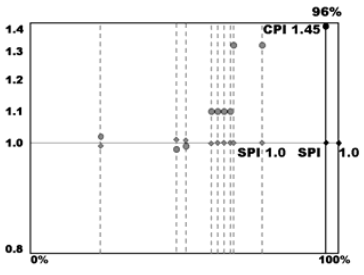
This project consists of constructing two 230kV underground cable circuits from Hurontario SS to Jim Yarrow Municipal TS to address load increases in the Western Brampton area.

On April 7, 2010, commissioning activities were completed and the project went into service. Cleanup work continues and is expected to be completed in June 2010.

Safety:	G	No issues
Cost:	G	Projection at completion is now $13M below the approved budget due to contingency funds not required for risks, including poor underground conditions, construction methods for underground installations and contract delays.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract for cable design, supply and install awarded to Black & McDonald.



R19T & R21T Pot Heads at Hurontario SS End Complete



Bruce to Milton



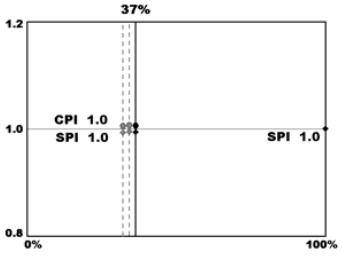
Approved Budget (Full Release):	$695.5 M
Contingency:	$29.3 M
Expenditures Life-to-date:	$256.5 M
Current Projection at Completion:	$695.5 M
Approved In-service Date:	Dec 2012

This project will construct a 500kV double-circuit line between the Bruce Nuclear Complex and the Milton SS to increase transfer capabilities for future renewable generation increases coming out of the Bruce area.



Road Construction at Tower 37

As of April 30, 2010, Hydro One reached agreements with 274 properties out of 350 to voluntarily acquire necessary land rights. Approximately 254 of these option agreements have been exercised to date. Right-of-way clearing commenced mid-March 2010 just east of the Bruce Power Complex. To date, approximately 24 of 742 tower spans have been cleared. All tenders for construction material have now been awarded. On April 28, 2010, road construction commenced and approximately 19 structures have been completed to date. The Niagara Escarpment Commission (NEC) hearing commenced January 26, 2010 and concluded its cross examination on March 24, 2010. A decision is expected shortly.



Safety:	G	No issues
Cost:	G	The budget received Board approval on February 11, 2010 and assumes a favourable decision by the OEB regarding construction work in progress charges.
Schedule:	G	No issues
Issues:	Y	NEC Approvals and Land Acquisition
Key Suppliers:	G	500kV line construction contract awarded to Valard Construction Ltd and contract for right-of-way clearing awarded to Winona Wood Ltd.

Milton SS Reconfiguration



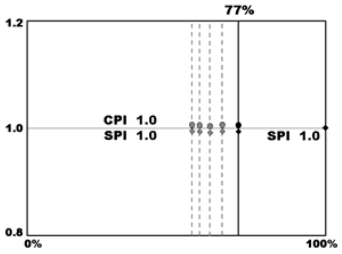
Approved Budget:	$28.7 M
Contingency:	$2.0 M
Expenditures Life-to-date:	$22.2 M
Current Projection at Completion:	$28.7 M
Approved In-service Date:	Dec 2010

This project includes the installation of additional 500kV station equipment to reconfigure the switching station at Milton in order to reduce or eliminate the need to curtail generation during forced and planned outages during construction for the Bruce to Milton project.



Existing GIS Prior to Extension

Construction is progressing and civil work related to gas insulated switchgear (GIS) installation continues.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	ABB Inc. is the supplier of gas-insulated switchgear.

Pickering NGS – PCT System Replacement



Approved Budget:	$27.5 M
Contingency:	$2.8 M
Expenditures Life-to-date:	$19.8 M
Current Projection at Completion:	$21.3 M
Approved In-service Date:	30 Jun 2010

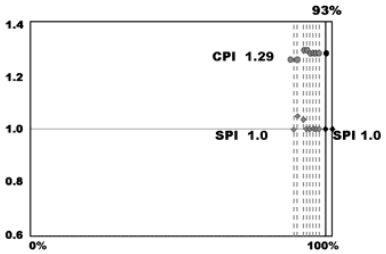
This project includes the replacement of the relay building at Hydro One's Pickering A switchyard to maintain the reliability and safety of the power system.

Prerequisite work for the 2010 outage continues on schedule. On April 13, 2010, remaining cutover work for two units commenced and is expected to be completed by the end of June 2010.

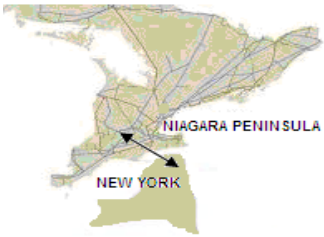
Safety:	G	No issues
Cost:	G	Project completion is projected to be approximately $6M below budget due to unused contingency allocated for risks around access to the site and uncertainty around OPG/Hydro One connection points, which were mitigated.
Schedule:	G	No issues
Issues:	G	No issues



Standardized Protection Modules at Pickering SS



Niagara System Reinforcement



Approved Budget:	$116.0 M
Expenditures Life-to-date:	$98.1 M
Current Projection at Completion:	TBD
Approved In-service Date:	TBD

This project improves the ability of Hydro One's transmission system to deliver generation available in the Niagara peninsula and improves its ability to deliver imports from New York to loads in the rest of Ontario.

Work stopped due to First Nations protest in Caledonia.

Safety:	G	No issues
Cost:	G	Under budget
Schedule:	R	Work stopped due to First Nations protest in Caledonia.
Issues:	R	First Nations land claim issue.



Niagara 230kV Line

Claireville TS to Cherrywood TS



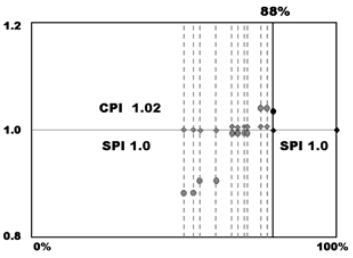
Approved Budget:	$117.3 M
Contingency:	$7.5 M
Expenditures Life-to-date:	$100.8 M
Current Projection at Completion:	$114.5 M
Approved In-service Date:	Dec 2010



Claireville TS: New 500kV Gas Insulated Line Exit

This project includes the reconfiguration and termination of existing lines to provide two additional 500kV lines between Claireville TS and Cherrywood TS, which will accommodate the increased power flows due to the new Hydro-Québec interconnection and the Portlands generating station.

Construction activities continue on schedule for two remaining circuit breaker installations at Cherrywood TS, including equipment installation and gas-insulated line installation. Construction activities continue on schedule for three circuit breaker installations at Claireville TS.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget due to an earlier than planned in-service of equipment resulting in reduced interest charges.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) AREVA is the supplier of switches at Cherrywood TS and Claireville TS. 2) ABB is the supplier for circuit breakers and CGIT is the supplier of gas-insulated buses at Cherrywood TS. 3) ABB is the supplier for gas insulated switchgear at Claireville TS.

Lakehead TS – Install SVC



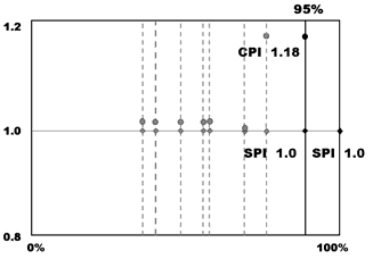
Approved Budget:	$22.5 M
Contingency:	$2.7 M
Expenditures Life-to-date:	$18.2 M
Current Projection at Completion:	$19.1 M
Approved In-service Date:	1 Dec 2009
Projected Completion Date:	Jul 2010



Lakehead SVC

This project includes the installation of a static var compensator (SVC) at Lakehead TS, to replace a synchronous condenser and to mitigate risks of unacceptable voltages.

On November 28, 2009, the SVC was placed into service as scheduled. Hydro One cleanup activities continue. A conditional Noise Certificate of Approval (C of A) has been issued to allow the operation of the SVC until the end of 2010. In February 2010, analysis of the noise levels was completed. Based on field measurements, it was concluded that a noise mitigation wall is not required.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget primarily due to contingency funds not required for noise mitigation.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	EPC contract awarded to Siemens Canada Inc.

Nobel SS: Install Series Capacitor Banks



Approved Budget:	$46.4 M
Contingency:	$3.7 M
Expenditures Life-to-date:	$34.0 M
Current Projection at Completion:	$47.9 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Aug 2010

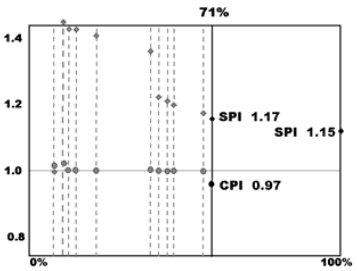


Nobel Station

This project includes the installation of two series capacitor banks at Nobel SS, which will increase power transfer capabilities along the transmission corridors North and South of Sudbury needed to facilitate the incorporation of renewable generation in Northern Ontario.

Vendor construction activities continue with foundation and platform work.

Safety:	G	No issues
Cost:	Y	Projection at completion is approximately $1.5M above the approved budget due to additional engineering and material costs and change requests from the vendor.
Schedule:	G	Projected in-service date is expected to occur ahead of schedule.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract, including design, manufacturing equipment, factory inspection and testing, delivery, installation and commissioning awarded to ABB.



Install SVCs at Porcupine TS and Kirkland Lake TS



Approved Budget:	$109.0 M
Contingency:	$10.1 M
Expenditures Life-to-date:	$37.7 M
Current Projection at Completion:	$106.5 M
Approved In-service Date:	Nov 2010 (Porcupine TS and Kirkland Lake TS)
Projected In-service Date:	Nov 2010 (Porcupine TS) Mar 2011 (Kirkland Lake TS)

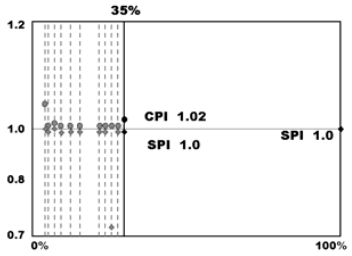


Porcupine SVC Site – Civil Works

This project includes the installation of two SVCs at Porcupine TS and Kirkland Lake TS, which will further increase power transfer capabilities North of Sudbury for renewable generation in Northern Ontario.

The vendor has requested a revised in-service date in March 2011 due to a delay in receiving the drainage C of A, resulting in late mobilization, and contaminated soil at Kirkland Lake TS. Construction activities continue on schedule for the turnkey contractor at Porcupine TS.

Safety:	G	No issues
Cost:	Y	Project is experiencing unanticipated contaminated soil at Kirkland TS.
Schedule:	G	Projected in-service date for Kirkland Lake TS is now March 2011 due to contaminated soil and receipt of C of A. This delay has been determined to be non-system impactive.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract including design, manufacturing equipment, factory inspection and testing, delivery, installation, and commissioning awarded to ABB for Kirkland Lake and to AREVA for Porcupine.



Woodstock Area Transmission Reinforcement



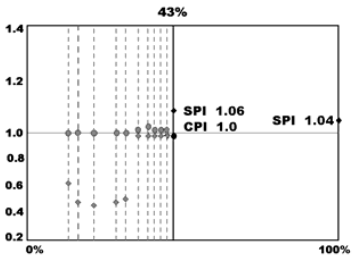
Approved Budget:	$71.6 M
Contingency:	$9.3 M
Expenditures Life-to-date:	$31.1 M
Current Projection at Completion:	$71.6 M
Approved In-service Date:	Apr 2010
Current Projected In-service Date:	July 2011



Woodstock Lines Construction

This project includes the construction of Karn TS, a 230kV double-circuit line between Ingersoll TS and Karn TS, and a 230kV double-circuit line between Karn TS and Woodstock TS.

Construction on the permanent line between Karn TS and Ingersoll TS continues on schedule. Station construction at Karn TS also continues on schedule.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	The projected in-service date is now expected to occur in July 2011 for the completion of the permanent transmission line and completion of the system due to land acquisition delays. The delay has been determined to be non-business impactive.
Issues:	G	No issues

Goreway TS – Add Transformation Capacity



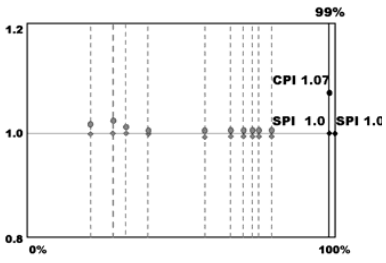
Approved Budget:	$24.5 M
Contingency:	$1.3 M
Expenditures Life-to-date:	$22.7 M
Current Projection at Completion:	$22.9 M
Approved In-service Date:	01 May 2010
Projected In-service Date:	24 May 2010
Actual In-service Date:	23 May 2010



Goreway 230kV Disconnect Switches

This project adds additional transformation capacity at Goreway TS to meet the growing needs of Hydro One Brampton.

On May 23, 2010, commissioning activities were completed and the project was declared in service.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $1.5M below the approved budget due to contingency funds not required for mitigated risks.
Schedule:	G	Project is in service.
Issues:	G	No issues
Key Suppliers:	G	Hyundai Canada Inc. is the vendor for transformers; Virelec Ltd. is the supplier for the protection, control and telecommunication in a box building; and Mitsubishi is the vendor for 28kV circuit breakers.

Nanticoke Breaker Replacement



Approved Budget:	$29.0 M
Contingency:	$2.9 M
Expenditures Life-to-date:	$27.4 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	July 2011

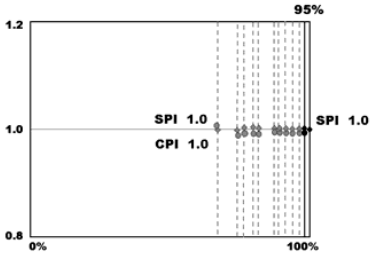
This project replaces circuit breakers and other equipment that have reached their end-of-life to reduce operational risks, maintenance and improve reliability.

Construction is continuing on schedule with foundation and electrical work. Breaker replacements continue on schedule with 11 of 14 breakers installed. Working within the constraints of OPG's outage availability, the final breaker is expected to go into service in 2011.



Nanticoke Circuit Breakers

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Install Capacitor Banks in South Western Ontario



Approved Budget:	$62.0 M
Contingency:	$8.0 M
Expenditures Life-to-date:	$57.1 M
Current Projection at Completion:	$59.9 M
Approved In-service Date:	31 Oct 2009
Current Projected In-service Date:	June 2010

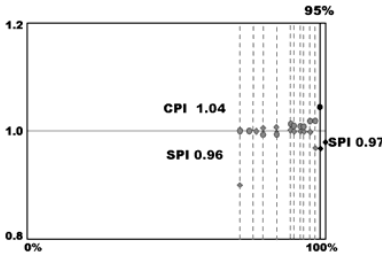
The OPA recommended that Hydro One install seven 230kV shunt capacitor banks at three transformer stations in South Western Ontario. The capacitors are a near term measure to expand transmission capacity in order to enable delivery of additional generation from the Bruce area.

Construction and commissioning activities continue at Buchanan TS. The final capacitor bank at Buchanan TS is projected to go into service in late June 2010.



Capacitor Bank at Middleport TS

Safety:	G	No issues.
Cost:	G	Projection at completion is approximately $2M below the approved budget due to contingency funds not required for mitigated risks.
Schedule:	G	The in-service date of the final capacitor bank at Buchanan TS is now June 2010 due to technical resources required to accommodate higher business impactive projects. This change has been determined to be non-business impactive.
Issues:	G	No issues
Key Suppliers:	G	ABB is the vendor for capacitor banks.



Increase Capacity at Vansickle TS



Approved Budget:	$16.6 M
Contingency:	$1.9 M
Expenditures Life-to-date:	$7.6 M
Current Projection at Completion:	$16.8 M
Approved In-service Date:	30 Nov 2010

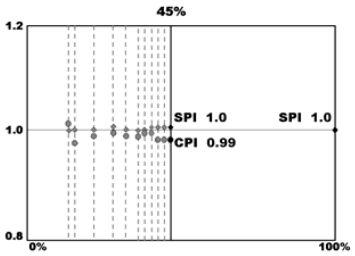
Horizon Utilities has requested the capacity of Vansickle TS be expanded to supply new loads in St. Catharines as a result of projected increases in load growth.

Construction activities continue. The two transformers are installed and are taking load.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	Y	Vendor delay of switchgear delivery is being closely monitored. Efforts are underway to help mitigate risk of delay in in-service.
Issues:	Y	Switchgear delivery delays
Key Suppliers:	G	General Switchgear & Controls Ltd. is the vendor for switchgear, and Hyundai Canada Inc. is the vendor for transformers.



Sound Barriers Complete



Burlington 115kV Switchyard Reconstruction



Approved Budget:	$61.0 M
Contingency:	$5.5 M
Expenditures Life-to-date:	$11.0 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	Summer 2012

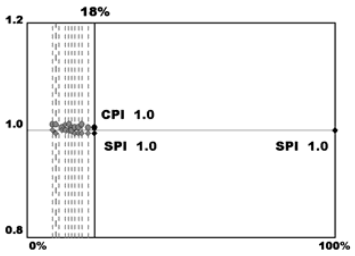
Multiple Burlington projects have been merged into a single investment to build a new 115kV switchyard on vacant property at Burlington TS.

Engineering design work continues, and civil construction continues with grading and foundation work. Construction of the relay building continues.

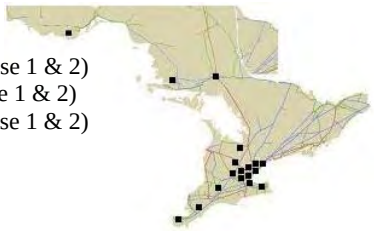
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Schedule is tight
Issues:	G	No issues
Key Suppliers:	G	Engineering, procurement and install contract awarded to PCR Contractors Inc. for 115 kV relay building.



Construction Site Looking South with Existing 115kV Yard



Mitigate Reliability Issues of HV Shunt Capacitor Installations – Phase Two



Approved Budget:	$46.7 M (Phase 1 & 2)
Contingency:	$4.7 M (Phase 1 & 2)
Expenditures Life-to-date:	$23.5 M (Phase 1 & 2)
Current Projection at Completion:	$44.3 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Dec 2011

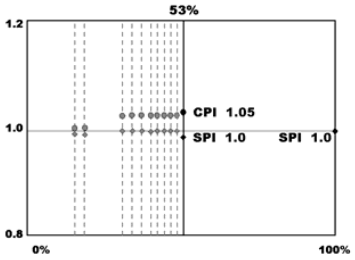
Phase Two addresses the outstanding risks associated with Hydro One's fleet of shunt capacitor bank installations by equipping them with surge capacitors among other activities.

Construction activities continue on schedule at Richview TS and Burlington TS. These are the first two of 18 stations, which are scheduled to be completed by December 2011.

Safety:	G	No issues
Cost:	G	Projection at completion is approximately $2M below the approved budget due to contingency funds not required for potential risks that did not materialize.
Schedule:	G	No issues
Issues:	G	No issues



Shunt Capacitor – Burlington TS



Churchill Meadows TS: Build New DESN



Approved Budget:	$31.0 M
Contingency:	$2.3 M
Expenditures Life-to-date:	$24.4 M
Current Projection at Completion:	$28.0 M
Approved In-service Date:	Jun 2010
Current Projected In-service Date:	Jul 2010

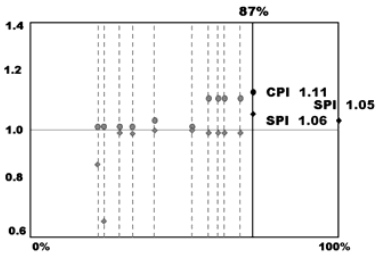
This project includes the construction of Churchill Meadows TS to relieve overloads at existing Hydro One stations in South West GTA and to meet future load growth.

Construction and commissioning activities continue on schedule.

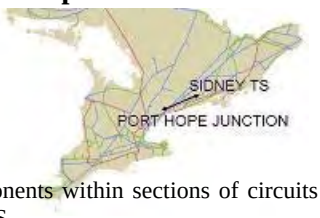
Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget due to contingency funds not required for mitigated risks.
Schedule:	G	The LDC has accepted the project delay of three months, from early June to late August 2010, due to drainage C of A requirements. Projected in-service date is now expected to occur at the end of July 2010.
Issues:	G	No issues



230 kV Yard and Station Line Entrance Structure



P3S & P4S Line Refurbishment and Equipment Replacement



Approved Budget:	$23.2 M
Contingency:	$1.7 M
Expenditures Life-to-date:	$11.9 M
Current Projection at Completion:	$23.2 M
Approved In-service Date:	May 2011

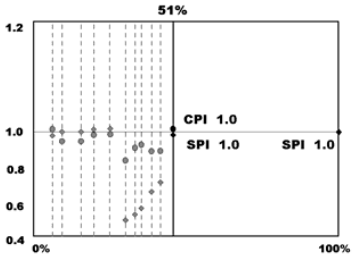
This project replaces end-of-life equipment and components within sections of circuits P3S and P4S between Port Hope Junction and Sidney TS.

On April 12, 2010, construction on P4S was completed. Construction on P3S continues on schedule. Replacement of the wood poles on P4S was 7% higher than identified in the Asset Condition Assessment and 50% higher for P3S. The IROV for the additional cost and the delay to schedule has been approved.

Safety:	G	No issues
Cost:	G	The IROV submitted to address the additional project cost associated with an increase in scope was approved (originally $21.1M).
Schedule:	G	The IROV submitted for the delay to the schedule from December 2010 to May 2011 was approved.
Issues:	G	No issues



Stringing the P4S Circuit



Longlac TS



Approved Budget:	$20.5 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$8.5 M
Current Projection at Completion:	$20.2 M
Approved In-service Date:	July 2011

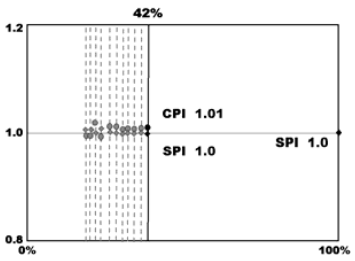
This project replaces end-of-life equipment at Longlac TS and provides additional transformation capacity to enable future connection of embedded generators and increase the station's reliability.

Engineering, procurement and construction activities continue on schedule. Construction is in progress with concrete foundations, grounding and steel structures.

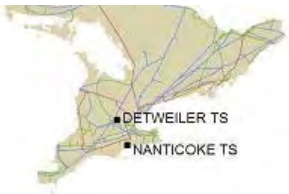
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Foundation and Spill Containment



Install SVCs at Detweiler TS and Nanticoke TS



Approved Budget:	$165.0 M
Contingency:	$28.8 M
Expenditures Life-to-date:	$18.3 M
Current Projection at Completion:	$165.0 M
Approved In-service Date:	May 2011

This project includes the installation of SVCs at Detweiler TS and Nanticoke TS to support increased generation from the Bruce nuclear plant and wind generation from the Bruce area as a short term measure prior to the in-service of the Bruce to Milton 500kV line.

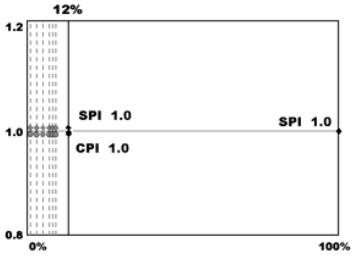
Hydro One and vendor construction at Nanticoke TS continues on schedule.

Vendor engineering activities continue at Detweiler TS. On May 3, 2010, construction of the SVC commenced.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) EPC contract for the Detweiler SVC awarded to ABB. 2) EPC contract for the Nanticoke SVC awarded to Siemens Canada Inc. and ABB is the vendor for 500kV breakers.



Nanticoke TS



Install Four Shunt Capacitor Banks at Porcupine TS, Hanmer TS and Essa TS

Approved Budget:	$26.4 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$0.3 M
Current Projection at Completion:	$26.4 M
Approved In-service Date:	Dec 2011

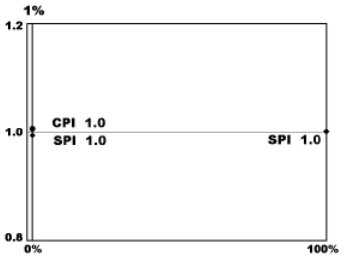
This project will add voltage support at: Essa TS to increase the transfer capability of the flow south interface so that all existing and committed generating facilities both north and west of Sudbury can be accommodated; Hanmer TS to increase the north-south transfer, and; Porcupine TS as part of the northeast reinforcement to accommodate new generation development in northern Ontario.

Procurement of major equipment and procurement of an engineering consultant is in progress.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Existing Capacitor Bank at Essa TS



Perimeter Security Upgrade for Stations

Approved Budget:	$30.5 M
Expenditures Life-to-date:	$29.6 M
Current Projection at Completion:	TBD
Approved In-service Date:	Nov 2009
Current Projected In-service Date:	TBD



Razor Mesh Fencing

Perimeter security was planned to be upgraded at 45 transmission stations in the GTA as part of Hydro One's copper theft prevention strategy. Security will be established around the station perimeter and at all main gates. Razor mesh and security systems have been installed at 23 stations so far. Work is currently underway at eight additional stations. Overall, the physical barrier provided by the new fence has so far been highly effective, even without the full monitoring system in place. At the 23 stations where the security and animal abatement fencing has been installed, we have had no reports of copper theft or power outages caused by animals.

Safety:	G	No issues
Cost:	R	An IROV is being prepared to reflect contract change orders including grounding and bonding. Full connectivity of security systems are also under consideration.
Schedule:	R	An IROV is being prepared for a revised in-service date due to contract change orders and training required for new technology.
Issues:	G	Fence bonding and grounding methods have been reviewed.
Key Suppliers:	G	Turnkey contract for the supply and install of razor mesh fencing and intrusion and infrared detection awarded to Safeguards of Canada Inc.

Major Green Projects Development

In September 2009, the Government of Ontario asked Hydro One to proceed with twenty green transmission projects in support of the Green Energy Act. From these twenty, seven projects have been given priority by the OPA. For these projects, a set of critical milestone activities that are under Hydro One's control will be identified.

On May 7, 2010, Hydro One received a letter from the Minister of Energy and Infrastructure indicating that we are only to proceed with projects that enable renewable generation on the basis that they have been identified by the Ontario Power Authority (OPA) as part of the government's green energy agenda. As a result, Hydro One is suspending all activities until formal written notice from the OPA is received. A transmission plan from the OPA is currently expected to be received in mid-June 2010.

Summary — April 2010

North-South Transmission Expansion *(Sudbury x Barrie x GTA)*



Budget (Development):	$ 18.2 M
Budget (Capital):	$ 884.3 M
Expenditures Life-to-date:	$ 0.4 M
In-service Date:	2016

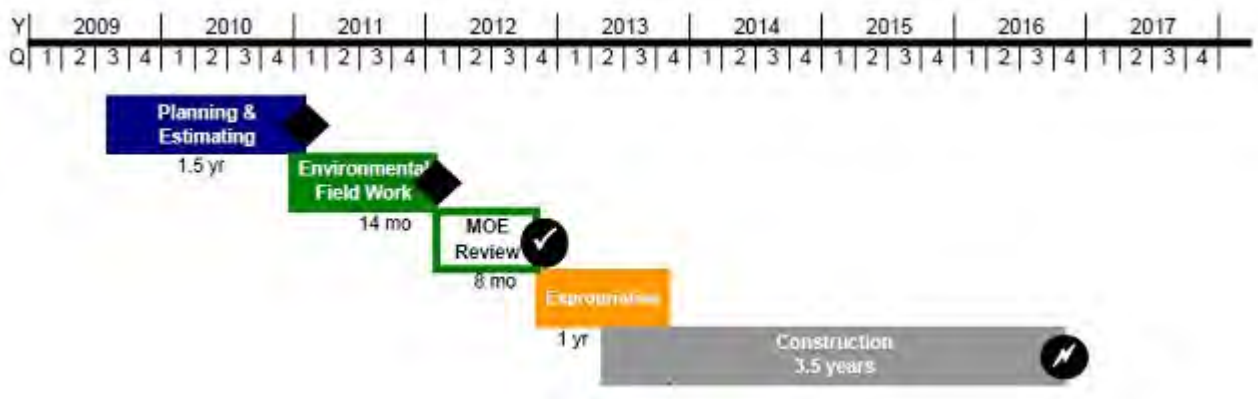
This project consists of building one additional single-circuit 500 kV line on an existing corridor from Sudbury to the Greater Toronto Area via Barrie. Overall, it will increase capacity by 1,700 MW.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 8
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for April 2010	



Sudbury x Algoma Area *(Hanmer x Mississagi)*



Budget (Development):	$ 5.8 M
Budget (Capital):	$ 459.4 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2014

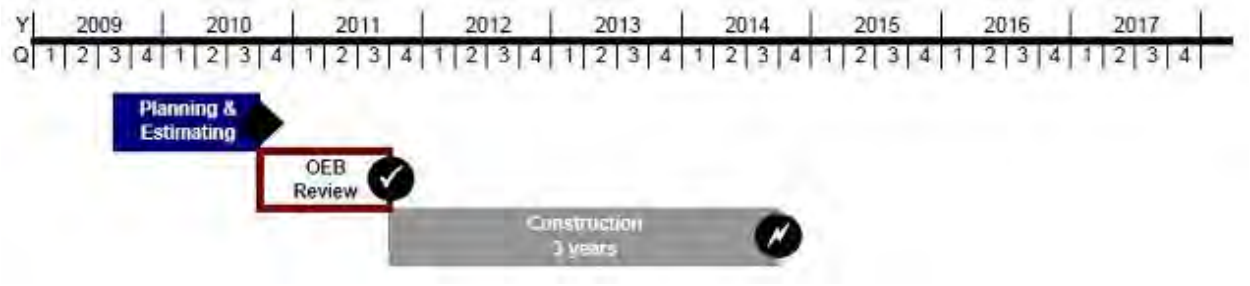
This project consists of building a second 500 kV line from Sudbury to the Algoma Area on an existing corridor. The new line will increase the electricity transfer capability by approximately 1,300 MW assuming that the existing 230 kV line is also converted to operation at 500 kV.

Project activities have been placed on hold. The original schedule targeted that by April 2010, these discussions would be finalized and a reference plan would be selected. The OPA is not prepared to provide input to select a reference plan at this time and advises that the consultation activities for this project be placed on hold. New schedules are under development for this project.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 8
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
Milestones planned for April 2010 were not met due to OPA re-prioritization of north-central green projects.	



Goderich Enabler



Budget (Development): $ 5.0 M
Budget (Capital): $ 114.8 M
Expenditures Life-to-date: $ 0.1 M
In-service Date: 2014

The OPA has identified Goderich as one of a number of areas with substantial renewable development potential. Based on the latest information received from the OPA regarding the possible location of the renewable generator proponents, two main options are under consideration. Plans are subject to change as further information is provided by the OPA and as the environmental assessment and preliminary engineering work is carried out.

Project activities have been placed on hold.

Cost: G No issues
Schedule: G No issues
Issues: G OPA re-prioritization

Year-to-date Milestones:
Targeted: 5
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
OPA Engagement – Discuss Project Need and Timing	January
Scope of Work Completed	February
Scope of Work for Options sent to E&CS	March
Development Work Cost Estimates Completed	March



East-West Transmission Tie *(Nipigon x Wawa)*



Budget (Development): $ 12.1 M
Budget (Capital): $ 511.2 M
Expenditures Life-to-date: $ 0.2 M
In-service Date: 2016

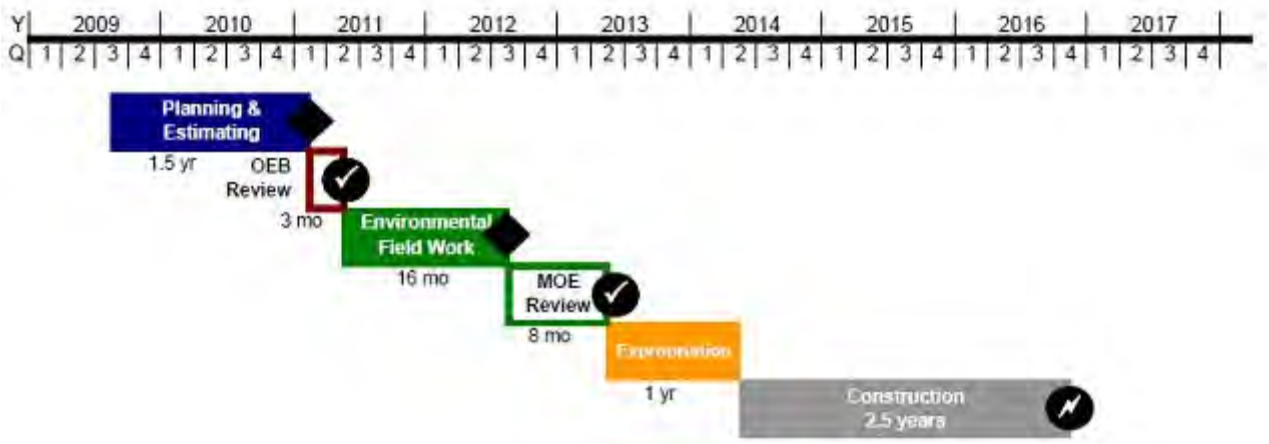
To accommodate interest and opportunities in renewable generation in Northwestern Ontario, a new 300km double-circuit 230kV transmission line is required from Wawa TS to Nipigon SS. The new line is expected to parallel the existing transmission corridor between Lakehead and Wawa. The project will increase the Northwest to Southern Ontario transfer capability by approximately 300 MW.

Project activities have been placed on hold.

Cost: G No issues
Schedule: G No issues
Issues: G OPA re-prioritization

Year-to-date Milestones:
Targeted: 7
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for April 2010	



Northwest Transmission Expansion *(Pickle Lake x Nipigon)*



Budget (Development):	$ 21.7 M
Budget (Capital):	$ 425.0 M
Expenditures Life-to-date:	$ 2.0 M
In-service Date:	2014

To incorporate hydroelectric and wind projects in the Lake Nipigon area, and to enable economic growth through increased capacity and reliability, a new 430km single circuit 230kV transmission line is needed from the Nipigon area to the Pickle Lake area. The line will accommodate up to 400 MW of renewable generation.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 2
Achieved: 2

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
Send Environmental Assessment Terms of Reference to the Ministry of the Environment (MOE) and the Ontario Ministry of Natural Resources (MNR) for informal feedback	February
No milestones planned for April 2010	



Manitoulin Island Enabler



Budget (Development):	$ 7.5 M
Budget (Capital):	$ 169.4 M
Expenditures Life-to-date:	$ 0.3 M
In-service Date:	2015

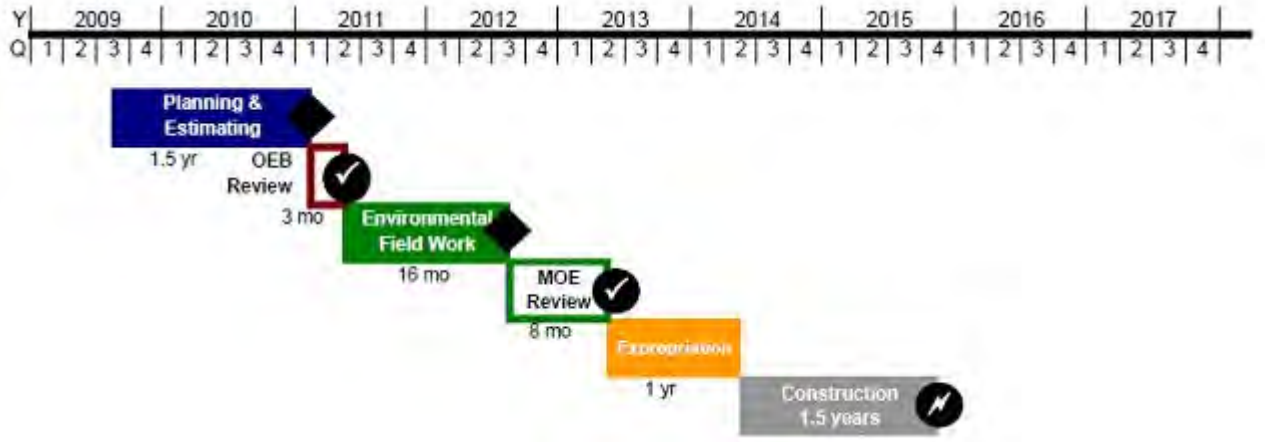
The OPA has identified Manitoulin Island as one of a number of areas with substantial renewable development potential. The enabler line will accommodate up to 500 MW of wind generation on the island via a new 230kV single-circuit transmission line approximately 80 km in length. The actual length and the terminal points will be determined on the basis of the Feed-in-Tariff (FIT) program results.

Project activities have been placed on hold. The original schedule targeted that by April 2010, a study area will be defined for the project. The OPA is not prepared to provide input to select a study area at this time and advises that the pre-consultation activities for this project be placed on hold. New schedules are under development for this project.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 9
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Milestones planned for April 2010 were not met due to OPA re-prioritization of north-central green projects.	



West of London Transmission Expansion



Budget (Development):	$ 22.7 M
Budget (Capital):	$ 706.3 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2017

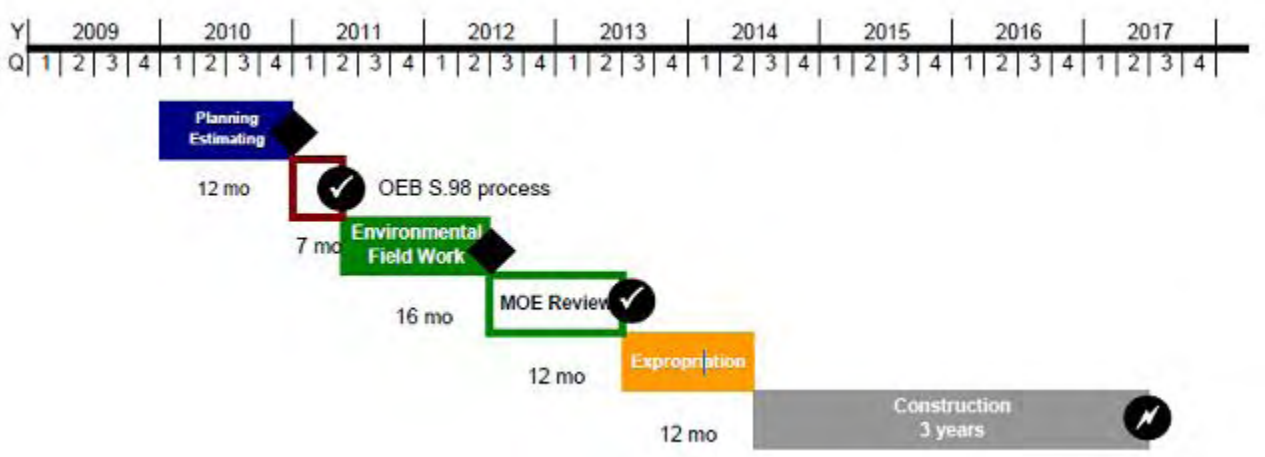
Hydro One has begun planning to identify transmission solutions that accommodate the significant interest in wind generation development in the area west of London. The OPA has advised Hydro One that approximately 1,900 MW of FIT applications were received for South Western Ontario, west of London, of which 1,400MW cannot be accommodated given current transmission limitations. The OPA has yet to determine the capacity target for this project, which will be based on the results of the Economic Connection Tests performed on the FIT applications and other factors such as the contract with the Korean Consortium. Input is required from the OPA by June 2010. The reference plan for the project currently involves the construction of three single-circuit 500kV or 230kV transmission lines. In view of the power system connectivity and the land use profile in the region, many options need to be considered.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 5
Achieved: 5

2010 Project Milestones Achieved Year-to-Date	
Complete OPA Engagement Meeting (Identify need, timing, and scale)	February
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Development Work Cost Estimates Completed	March
Study Area Definition Completed	March



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HYDRO ONE NETWORKS INC.

Programs & Projects Status

OM&A and Capital Summary — **May 2010**

($ millions)	Year-to-Date 2010 Actual	Year-to-Date Variance to Budget	Year-Over-Year 2009 Actual	Year-Over-Year Year/Year Variance	Year-End Projection	Year-End Variance to Budget
Transmission OM&A						
Lines	8	-	8	-	21	-
Forestry	10	-	8	2	23	(1)
Grid Operations	49	(1)	38	11	135	-
Engineering & Construction	10	-	11	(1)	26	-
Green Projects	3	(3)	-	3	5	(27)
Asset Mgt. & Other Operations	7	-	10	(3)	21	(1)
Smart Grid	-	(1)	-	-	4	-
Property Taxes	28	(1)	27	1	68	(1)
Other Costs	58	1	69	(11)	129	23
Total	**173**	**(5)**	**171**	**2**	**432**	**(7)**
Transmission Capital						
Lines	18	1	17	1	33	-
Grid Operations	8	1	6	2	28	-
Engineering & Construction	267	(16)	248	19	757	(1)
Green Projects	1	-	-	1	6	1
Smart Grid	-	-	-	-	1	-
Asset Management	-	-	-	-	2	-
Other Costs	32	(6)	60	(28)	103	-
Total	**326**	**(20)**	**331**	**(5)**	**930**	**-**

- **Transmission OM&A** year-to-date is $5M or 3% lower than plan, primarily due to lower property tax payments and lower corporate requirements, reflecting continued cost management, including hiring deferrals. Lower than planned integrated power system plan (IPSP) work is offset by the corresponding IPSP credit to reflect the deferral of such costs for future recovery.

  OM&A is consistent with 2009. Higher preventative stations maintenance to support aging infrastructure particularly on transformers, higher requirements for corrective stations-related maintenance for power equipment and higher IT expenditures are largely offset by a reallocation of resources in support of the capital work program.

  Year-end OM&A is projected to be $7M or 2% lower than plan, primarily due to lower property tax payments and corporate organization requirements. At year-end, lower than planned IPSP work is offset by the corresponding IPSP credit to reflect the deferral of such costs for future recovery.

- **Transmission Capital** year-to-date is $20M or 6% lower than plan, primarily reflecting timing of expenditures related to transmission development lines and stations programs, including the Bruce to Milton project related to reduced costs for real estate activities and the Detweiler TS and Nanticoke TS project.

  Capital is $5M or 2% lower than 2009, primarily due to lower Cornerstone project expenditures as a result of the project's go-live in mid-2009 and lower expenditures incurred to enhance information security at the OGCC due to the completion of the NERC security project in December 2009. Partially offsetting the year-over-year variance are higher expenditures related to transmission sustainment programs, including the breaker installation, wood pole replacement, and protection and control replacement programs. Also, we continue to experience higher development lines and stations expenditures for major off-coal projects, including Bruce to Milton, Porcupine TS and Kirkland Lake TS, Nobel SS, and static var compensator installations at Detweiler TS and Nanticoke TS are largely offset by lower expenditures on the South Western Ontario Capacitor Banks and Cherrywood TS to Claireville TS and GTA West Transmission Reinforcement projects consistent with their 2010 in-service dates.

  Year-end capital is projected to be on plan.

Legend:

SPI: Schedule Performance Index
Indicator of 1 means project is on schedule.
Greater than 1 means project is ahead of schedule.
Less than 1 means project is behind schedule.

CPI: Cost Performance Index
Indicator of 1 means project cost is on budget.
Greater than 1 means project cost is less than budget.
Less than 1 means project cost is higher than budget.

Projects In-Service Year-to-Date

GTA West Transmission Reinforcement

Approved Budget:	$47.6 M
Contingency:	$3.1 M
Expenditures Life-to-date:	$44.3 M
Current Projection at Completion:	$44.6 M
Approved In-service:	Feb 2010
Actual In-service:	01 Feb 2010



On February 1, 2010, the project was placed into service as scheduled, consistent with the approved in-service date. On April 7, 2010, civil clean up and landscaping activities commenced and continues.


Hurontario Lines Construction

Hurontario SS to Jim Yarrow TS

Approved Budget:	$42.0 M
Contingency:	$6.0 M
Expenditures Life-to-date:	$27.8 M
Current Projection at Completion:	$29.0 M
Approved In-service:	Feb 2010
Actual In-service:	07 Apr 2010



On April 7, 2010, commissioning activities were completed and the project went into service as scheduled, consistent with the approved in-service date. Projected spend at completion is approximately $13M below the approved budget primarily due to contingency funds no longer required for unique risks associated with poor underground conditions, construction methods for underground installations and contract delays. Clean up activities, including right-of-way restoration, are continuing.


R19T & R21T Pot Heads at Hurontario SS End Complete

Lakehead TS – Install SVC

Approved Budget:	$22.5 M
Contingency:	$2.7 M
Expenditures Life-to-date:	$18.4 M
Current Projection at Completion:	$19.1 M
Approved In-service:	1 Dec 2009
Actual In-service:	28 Nov 2009
Project Completion:	Summer 2010



On November 28, 2009, the SVC was placed into service as scheduled, consistent with the approved in-service date. Projection at completion is also consistent with the approved budget. Hydro One cleanup activities continue.


Lakehead SVC

Goreway TS – Add Transformation Capacity

Approved Budget:	$24.5 M
Contingency:	$1.3 M
Expenditures Life-to-date:	$23.3 M
Current Projection at Completion:	$23.4 M
Approved In-service Date:	01 May 2010
Projected In-service Date:	24 May 2010
Actual In-service Date:	23 May 2010



On May 23, 2010, commissioning activities were completed and the project was declared in service, consistent with the approved in-service date. Landscaping and cleanup activities continue.


Goreway 230kV Disconnect Switches

Projects in Process

Bruce to Milton



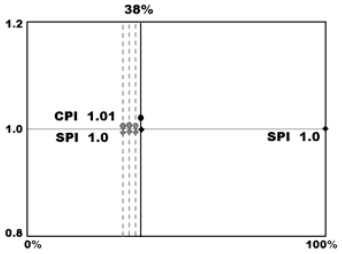
Approved Budget (Full Release):	$695.5 M
Contingency:	$29.3 M
Expenditures Life-to-date:	$261.5 M
Current Projection at Completion:	$689.7 M
Approved In-service Date:	Dec 2012

This project will construct a 500kV double-circuit line between the Bruce Nuclear Complex and the Milton SS to increase transfer capabilities for future renewable generation increases coming out of the Bruce area.



Placing of a Reinforcing Steel Cage in Augured Excavation

As of May 31, 2010, Hydro One reached agreements with 280 properties out of 350 to voluntarily acquire necessary land rights. Approximately 270 of these option agreements have been exercised to date. Right-of-way clearing commenced mid-March 2010 just east of the Bruce Power Complex. To date, approximately 42 of 742 tower spans have been cleared. On April 28, 2010, road construction commenced and access to approximately 70 structures have been completed to date. Crews have mobilized on site and foundation installation commenced mid-May 2010. Approximately 15 structures have been completed. The Niagara Escarpment Commission (NEC) hearing commenced January 26, 2010 and concluded its cross examination on March 24, 2010. The decision is outstanding without a clear indication of when it will be received. Hydro One will continue to monitor the status of the decision.



Safety:	G	No issues
Cost:	G	Projection at completion is currently expected to be approximately $6M lower than the approved budget due to reduced costs for real estate activities.
Schedule:	G	No issues
Issues:	Y	NEC Approvals and Land Acquisition
Key Suppliers:	G	500kV line construction contract awarded to Valard Construction Ltd and contract for right-of-way clearing awarded to Winona Wood Ltd.

Milton SS Reconfiguration



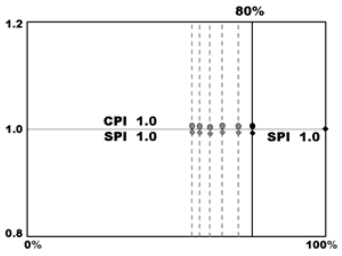
Approved Budget:	$28.7 M
Contingency:	$2.0 M
Expenditures Life-to-date:	$23.0 M
Current Projection at Completion:	$28.7 M
Approved In-service Date:	Dec 2010

This project includes the installation of additional 500kV station equipment to reconfigure the switching station at Milton in order to reduce or eliminate the need to curtail generation during forced and planned outages during construction for the Bruce to Milton project.



Existing and New GIS and Interface

Construction is progressing and civil work related to gas insulated switchgear (GIS) installation continues. On June 9, 2010, work was completed on the first phase of the GIS installation. On June 10, 2010, high voltage testing was completed successfully. Non-outage work will continue for the next three months on installation of new diameter break bays.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	ABB Inc. is the supplier of gas-insulated switchgear.

Pickering NGS – PCT System Replacement



Approved Budget:	$27.5 M
Contingency:	$2.8 M
Expenditures Life-to-date:	$20.2 M
Current Projection at Completion:	$21.4M
Approved In-service Date:	30 Jun 2010
Actual In-service Date:	21 Jun 2010

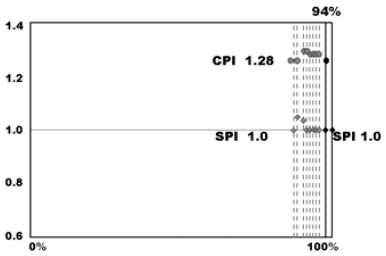
This project includes the replacement of the relay building at Hydro One's Pickering A switchyard to maintain the reliability and safety of the power system.

On June 21, 2010, the cutover work for the remaining two units was successfully completed. Clean up activities commenced, including disposition of legacy items, and are expected to be completed by year-end.

Safety:	G	No issues
Cost:	G	Project at completion is approximately $6M below budget due to unused contingency allocated for risks around access to the site and uncertainty around OPG/Hydro One connection points, which were mitigated.
Schedule:	G	No issues
Issues:	G	No issues



Standardized Protection Modules at Pickering SS



Niagara System Reinforcement



Approved Budget:	$116.0 M
Expenditures Life-to-date:	$98.1 M
Current Projection at Completion:	TBD
Approved In-service Date:	TBD

This project improves the ability of Hydro One's transmission system to deliver generation available in the Niagara peninsula and improves its ability to deliver imports from New York to loads in the rest of Ontario.

Work stopped due to First Nations protest in Caledonia.

Safety:	G	No issues
Cost:	G	Under budget
Schedule:	R	Work stopped due to First Nations protest in Caledonia.
Issues:	R	First Nations land claim issue.



Niagara 230kV Line

Claireville TS to Cherrywood TS



Approved Budget:	$117.3 M
Contingency:	$7.5 M
Expenditures Life-to-date:	$103.3 M
Current Projection at Completion:	$113.8 M
Approved In-service Date:	Dec 2010

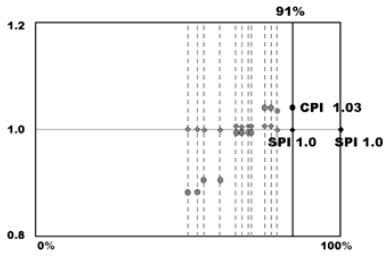
This project includes the reconfiguration and termination of existing lines to provide two additional 500kV lines between Claireville TS and Cherrywood TS, which will accommodate the increased power flows due to the new Hydro-Québec interconnection and the Portlands generating station.

Construction activities continue to be on schedule at Claireville TS and Cherrywood TS. On May 31, 2010, commissioning commenced on the remaining two of six breakers at Cherrywood TS. Also on May 31, Phase 2 commenced at Claireville TS.



Cherrywood TS Newline GIS bus and line exit

Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3.5M below the approved budget due to an earlier than planned in-service of equipment resulting in reduced interest charges.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) AREVA is the supplier of switches at Cherrywood TS and Claireville TS. 2) ABB is the supplier for circuit breakers and CGIT is the supplier of gas-insulated buses at Cherrywood TS. 3) ABB is the supplier for gas insulated switchgear at Claireville TS.



Nobel SS: Install Series Capacitor Banks



Approved Budget:	$46.4 M
Contingency:	$3.7 M
Expenditures Life-to-date:	$35.4 M
Current Projection at Completion:	$46.4 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Aug 2010

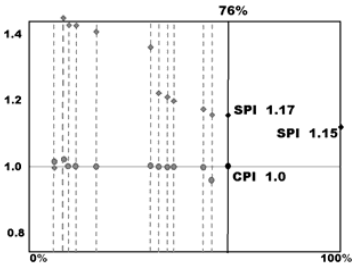
This project includes the installation of two series capacitor banks at Nobel SS, which will increase power transfer capabilities along the transmission corridors North and South of Sudbury needed to facilitate the incorporation of renewable generation in Northern Ontario.

Vendor construction activities continue with foundation and platform work.



Nobel Station

Safety:	G	No issues
Cost:	Y	Projection at completion is expected to meet the approved budget; however, a change order submitted by the vendor is currently under review and negotiation with Hydro One.
Schedule:	G	Projected in-service date is expected to occur ahead of schedule.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract, including design, manufacturing equipment, factory inspection and testing, delivery, installation and commissioning awarded to ABB.



Install SVCs at Porcupine TS and Kirkland Lake TS



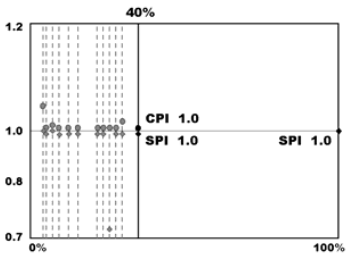
Approved Budget:	$109.0 M
Contingency:	$10.1 M
Expenditures Life-to-date:	$43.2 M
Current Projection at Completion:	$109.0 M
Approved In-service Date:	Nov 2010 (Porcupine TS and Kirkland Lake TS)
Projected In-service Date:	Nov 2010 (Porcupine TS) Mar 2011 (Kirkland Lake TS)



Porcupine SVC Site – Civil Works

This project includes the installation of two SVCs at Porcupine TS and Kirkland Lake TS, which will further increase power transfer capabilities North of Sudbury for renewable generation in Northern Ontario.

Construction activities continue on schedule for the vendor at Kirkland Lake TS and the turnkey contractor at Porcupine TS.



Safety:	G	No issues
Cost:	Y	Project is experiencing unanticipated contaminated soil at Kirkland Lake TS. The cost impact is being reviewed with the vendor.
Schedule:	Y	Projected in-service date may be further delayed by six to eight weeks due to delays in factory acceptance testing of the complex controls system for the SVC. This delay has been determined to be non-system impactive.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract including design, manufacturing equipment, factory inspection and testing, delivery, installation, and commissioning awarded to ABB for Kirkland Lake and to AREVA for Porcupine.

Woodstock Area Transmission Reinforcement



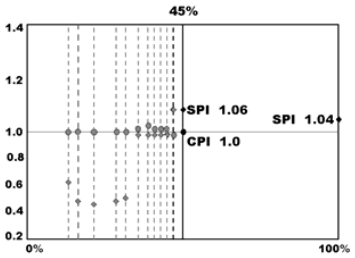
Approved Budget:	$71.6 M
Contingency:	$9.3 M
Expenditures Life-to-date:	$32.2 M
Current Projection at Completion:	$71.6 M
Approved In-service Date:	Apr 2010
Current Projected In-service Date:	July 2011



Woodstock Lines Construction

This project includes the construction of Karn TS, a 230kV double-circuit line between Ingersoll TS and Karn TS, and a 230kV double-circuit line between Karn TS and Woodstock TS.

Construction on the permanent line between Karn TS and Ingersoll TS continues on schedule. Station construction at Karn TS also continues on schedule.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Projected in-service date is now expected to occur in July 2011 for the completion of the permanent transmission line and completion of the system due to land acquisition delays. The delay has been determined to be non-business impactive.
Issues:	G	No issues

Nanticoke Breaker Replacement



Approved Budget:	$29.0 M
Contingency:	$2.9 M
Expenditures Life-to-date:	$27.4 M
Current Projection at Completion:	$28.9 M
Approved In-service Date:	July 2011

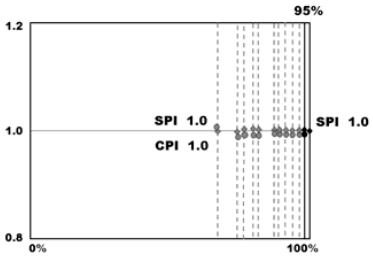
This project replaces circuit breakers and other equipment that have reached their end-of-life to reduce operational risks, maintenance and improve reliability.

Construction is continuing on schedule with foundation and electrical work. Breaker replacements continue on schedule with 11 of 14 breakers installed. Working within the constraints of OPG's outage availability, the final breaker is expected to go into service in 2011.



Nanticoke Circuit Breakers

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Install Capacitor Banks in South Western Ontario



Approved Budget:	$62.0 M
Contingency:	$8.0 M
Expenditures Life-to-date:	$57.7 M
Current Projection at Completion:	$60.9 M
Approved In-service Date:	31 Oct 2009
Current Projected In-service Date:	June 2010
Actual In-service Date:	25 June 2010

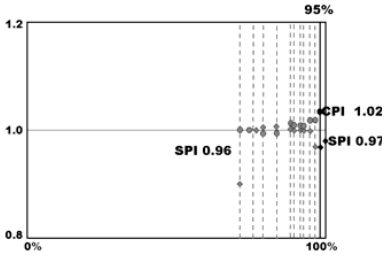
The OPA recommended that Hydro One install seven 230kV shunt capacitor banks at three transformer stations in South Western Ontario. The capacitors are a near term measure to expand transmission capacity in order to enable delivery of additional generation from the Bruce area.



Capacitor Bank at Middleport TS

On June 25, 2010, the final capacitor bank at Buchanan TS successfully went into service. Clean-up work is in progress at Nanticoke TS and Middleport TS.

Safety:	G	No issues.
Cost:	G	Projection at completion is approximately $1M below the approved budget due to contingency funds not required for mitigated risks.
Schedule:	G	The in-service date of the final capacitor bank at Buchanan TS was changed to June 2010 due to technical resources required to accommodate higher business impactive projects. This change was determined to be non-business impactive.
Issues:	G	No issues
Key Suppliers:	G	ABB is the vendor for capacitor banks.



Increase Capacity at Vansickle TS



Approved Budget:	$16.6 M
Contingency:	$1.9 M
Expenditures Life-to-date:	$7.7 M
Current Projection at Completion:	$16.8 M
Approved In-service Date:	30 Nov 2010

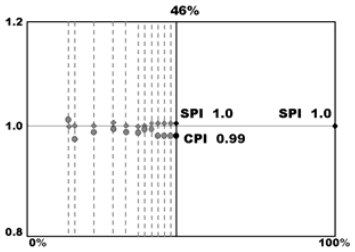
Horizon Utilities has requested the capacity of Vansickle TS be expanded to supply new loads in St. Catharines as a result of projected increases in load growth.

Construction activities continue. The two transformers are installed and are taking load.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	Y	Vendor delay of switchgear delivery is being closely monitored. Efforts are underway to help mitigate risk of delay in in-service.
Issues:	Y	A mitigating plan is in place to connect old switchgear to Brock University due to switchgear vendor delays.
Key Suppliers:	G	General Switchgear & Controls Ltd. is the vendor for switchgear, and Hyundai Canada Inc. is the vendor for transformers.



Sound Barriers Complete



Burlington 115kV Switchyard Reconstruction



Approved Budget:	$61.0 M
Contingency:	$5.5 M
Expenditures Life-to-date:	$13.6 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	Summer 2012

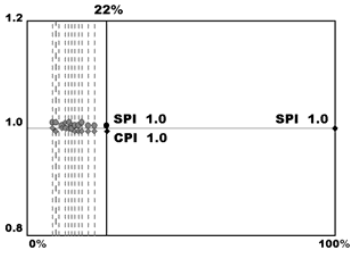
Multiple Burlington projects have been merged into a single investment to build a new 115kV switchyard on vacant property at Burlington TS.

Engineering design work continues, and civil construction continues with grading and foundation work. Construction of the relay building continues. On June 7, 2010, electrical construction on steel structure commenced.

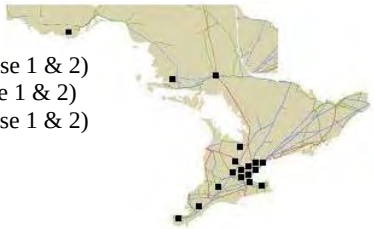
Safety:	G	No issues
Cost:	G	No issues
Schedule:	Y	The projected in-service date has a probability of being delayed to 2013 after extensive discussions during finalization of the scope of work and release of the project. A revised schedule will be available next month.
Issues:	G	No issues
Key Suppliers:	G	Engineering, procurement and install contract awarded to PCR Contractors Inc. for 115 kV relay building.



Construction Site Looking South with Existing 115kV Yard



Mitigate Reliability Issues of HV Shunt Capacitor Installations – Phase Two



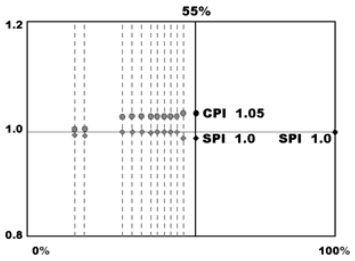
Approved Budget:	$46.7 M (Phase 1 & 2)
Contingency:	$4.7 M (Phase 1 & 2)
Expenditures Life-to-date:	$24.5 M (Phase 1 & 2)
Current Projection at Completion:	$44.3 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Dec 2011



Shunt Capacitor – Burlington TS

Phase Two addresses the outstanding risks associated with Hydro One's fleet of shunt capacitor bank installations by equipping them with surge capacitors among other activities.

Construction activities continue on schedule at the first two stations. Construction at Richview TS is expected to be complete in August 2010. These are the first two of 18 stations, which are scheduled to be completed by December 2011.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $2M below the approved budget due to contingency funds not required for potential risks that did not materialize.
Schedule:	G	No issues
Issues:	G	No issues

Churchill Meadows TS: Build New DESN



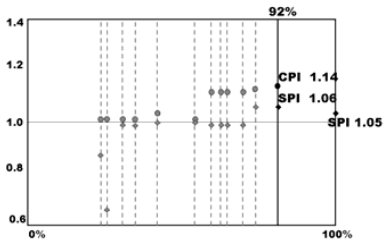
Approved Budget:	$31.0 M
Contingency:	$2.3 M
Expenditures Life-to-date:	$25.1 M
Current Projection at Completion:	$27.3 M
Approved In-service Date:	Jun 2010
Current Projected In-service Date:	Jul 2010



230 kV Yard and Station Line Entrance Structure

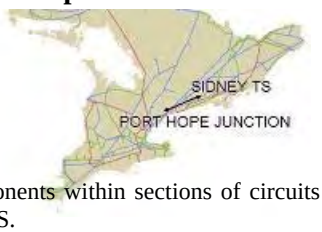
This project includes the construction of Churchill Meadows TS to relieve overloads at existing Hydro One stations in South West GTA and to meet future load growth.

Construction and commissioning activities continue on schedule.



Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3.5M below the approved budget due to contingency funds not required for mitigated risks.
Schedule:	G	The LDC has accepted the project delay of three months, from early June to late August 2010, due to drainage C of A requirements. Projected in-service date is now expected to occur at the end of July 2010.
Issues:	G	No issues

P3S & P4S Line Refurbishment and Equipment Replacement



Approved Budget:	$23.2 M
Contingency:	$1.7 M
Expenditures Life-to-date:	$12.6 M
Current Projection at Completion:	$23.2 M
Approved In-service Date:	May 2011

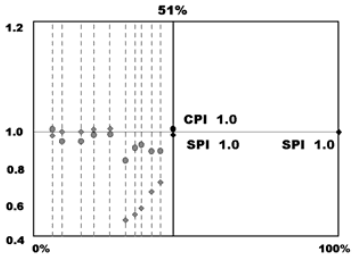
This project replaces end-of-life equipment and components within sections of circuits P3S and P4S between Port Hope Junction and Sidney TS.

On April 12, 2010, construction on P4S was completed. Construction on P4S continues on schedule.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Stringing the P4S Circuit



Longlac TS



Approved Budget:	$20.5 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$9.2 M
Current Projection at Completion:	$20.0 M
Approved In-service Date:	July 2011

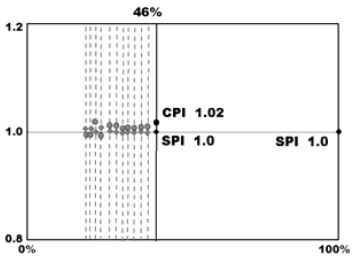
This project replaces end-of-life equipment at Longlac TS and provides additional transformation capacity to enable future connection of embedded generators and increase the station's reliability.

Engineering, procurement and construction activities continue on schedule. Construction is in progress with concrete foundations, grounding and steel structures.

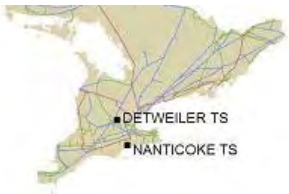
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Foundation and Spill Containment



Install SVCs at Detweiler TS and Nanticoke TS



Approved Budget:	$165.0 M
Contingency:	$28.8 M
Expenditures Life-to-date:	$23.0 M
Current Projection at Completion:	$162.9 M
Approved In-service Date:	May 2011

This project includes the installation of SVCs at Detweiler TS and Nanticoke TS to support increased generation from the Bruce nuclear plant and wind generation from the Bruce area as a short term measure prior to the in-service of the Bruce to Milton 500kV line.

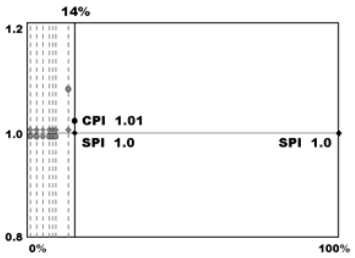
Vendor engineering activities continue at Detweiler TS. On May 3, 2010, construction of the auxiliary services to the SVC commenced and continues on schedule.

Hydro One and vendor construction at Nanticoke TS continues on schedule.

Safety:	Y	On May 21, 2010, a stop work order was issued to the vendor at Nanticoke TS for a trip and fall incident. The vendor has corrected the deficiencies to the satisfaction of the Ministry of Labour and the stop work order was lifted.
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) EPC contract for the Detweiler SVC awarded to ABB. 2) EPC contract for the Nanticoke SVC awarded to Siemens Canada Inc. and ABB is the vendor for 500kV breakers.



Nanticoke TS



Install Four Shunt Capacitor Banks at Porcupine TS, Hanmer TS and Essa TS

Approved Budget:	$26.4 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$0.3 M
Current Projection at Completion:	$26.4 M
Approved In-service Date:	Dec 2011

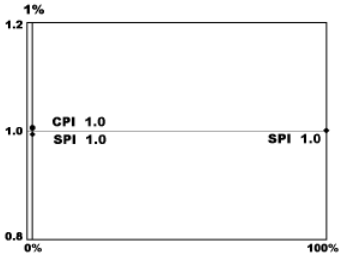
This project will add voltage support at: Essa TS to increase the transfer capability of the flow south interface so that all existing and committed generating facilities both north and west of Sudbury can be accommodated; Hanmer TS to increase the north-south transfer, and; Porcupine TS as part of the northeast reinforcement to accommodate new generation development in northern Ontario.

Procurement of major equipment and procurement of an engineering consultant is in progress.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Existing Capacitor Bank at Essa TS



Perimeter Security Upgrade for Stations

Approved Budget:	$30.5 M
Expenditures Life-to-date:	$29.9 M
Current Projection at Completion:	TBD
Approved In-service Date:	Nov 2009
Current Projected In-service Date:	TBD



Razor Mesh Fencing

Perimeter security was planned to be upgraded at 45 transmission stations in the GTA as part of Hydro One's copper theft prevention strategy. Security will be established around the station perimeter and at all main gates. Razor mesh and security systems have been installed at 23 stations so far with requirements for the remaining eight under review. An Interim Review of Variance (IROV) is being prepared. Overall, the physical barrier provided by the new fence has so far been effective, even without the full monitoring system in place. At the 23 stations where the security and animal abatement fencing has been installed, we have had no reports of copper theft or power outages caused by animals.

Safety:	G	No issues
Cost:	R	An IROV is being prepared to reflect contract change orders including grounding and bonding. Full connectivity of security systems are also under consideration.
Schedule:	R	An IROV is being prepared for a revised in-service date due to contract change orders and training required for new technology.
Issues:	G	Fence bonding and grounding methods have been reviewed.
Key Suppliers:	G	Turnkey contract for the supply and install of razor mesh fencing and intrusion and infrared detection awarded to Safeguards of Canada Inc.

Major Green Projects Development

In September 2009, the Government of Ontario asked Hydro One to proceed with twenty green transmission projects in support of the Green Energy Act. From these twenty, seven projects have been given priority by the Ontario Power Authority (OPA). For these projects, a set of critical milestone activities that are under Hydro One's control will be identified.

On May 7, 2010, Hydro One received a letter from the MEI indicating that we are only to proceed with projects that enable renewable generation on the basis that they have been identified by the OPA as part of the government's green energy agenda. As a result, Hydro One is suspending all activities until formal written notice from the OPA is received.

On June 11, 2010, the OPA provided a draft copy of the transmission expansion plan to the MEI. Upon receiving the final plan from the Ministry of Energy and Infrastructure, Hydro One will be able to proceed with the projects identified by the OPA.

Summary — May 2010

North-South Transmission Expansion *(Sudbury x Barrie x GTA)*



Budget (Development):	$ 18.2 M
Budget (Capital):	$ 884.3 M
Expenditures Life-to-date:	$ 0.5 M
In-service Date:	2016

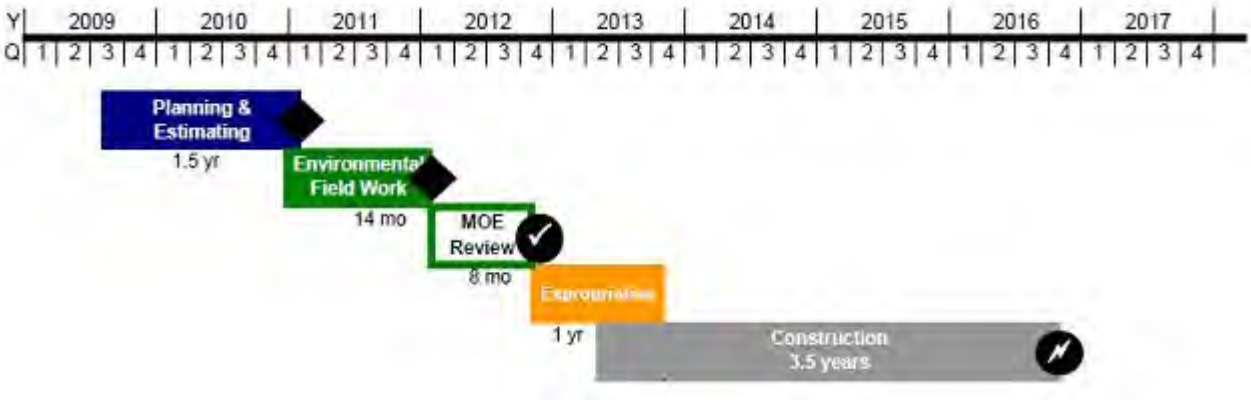
This project consists of building one additional single-circuit 500 kV line on an existing corridor from Sudbury to the Greater Toronto Area via Barrie. Overall, it will increase capacity by 1,700 MW.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 9
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for May 2010	



Sudbury x Algoma Area *(Hanmer x Mississagi)*



Budget (Development):	$ 5.8 M
Budget (Capital):	$ 459.4 M
Expenditures Life-to-date:	$ 0.3 M
In-service Date:	2014

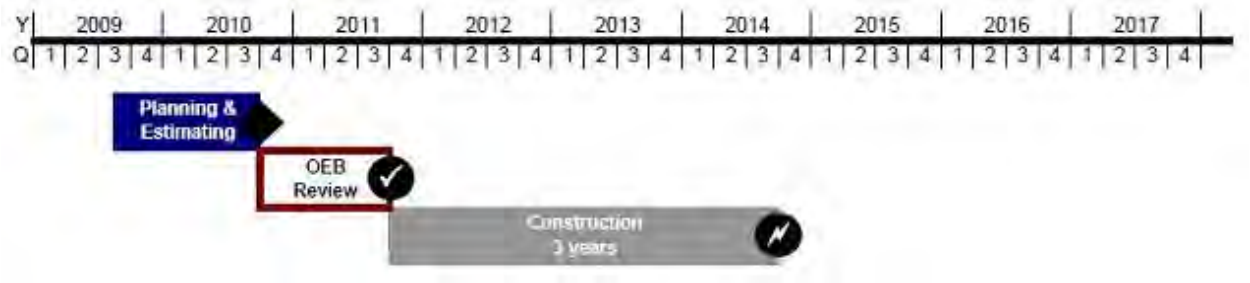
This project consists of building a second 500 kV line from Sudbury to the Algoma Area on an existing corridor. The new line will increase the electricity transfer capability by approximately 1,300 MW assuming that the existing 230 kV line is also converted to operation at 500 kV.

Project activities have been placed on hold. The original schedule targeted that by April 2010, these discussions would be finalized and a reference plan would be selected. The OPA is not prepared to provide input to select a reference plan at this time and advises that the consultation activities for this project be placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 9
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
Milestones planned for May 2010 were not met due to OPA re-prioritization of north-central green projects.	



Goderich Enabler



Budget (Development): $ 5.0 M
Budget (Capital): $ 114.8 M
Expenditures Life-to-date: $ 0.2 M
In-service Date: 2014

The OPA has identified Goderich as one of a number of areas with substantial renewable development potential. Based on the latest information received from the OPA regarding the possible location of the renewable generator proponents, two main options are under consideration. Plans are subject to change as further information is provided by the OPA and as the environmental assessment and preliminary engineering work is carried out.

Project activities have been placed on hold.

Cost: G No issues
Schedule: G No issues
Issues: G OPA re-prioritization

Year-to-date Milestones:
Targeted: 5
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
OPA Engagement – Discuss Project Need and Timing	January
Scope of Work Completed	February
Scope of Work for Options sent to E&CS	March
Development Work Cost Estimates Completed	March



East-West Transmission Tie *(Nipigon x Wawa)*



Budget (Development): $ 12.1 M
Budget (Capital): $ 511.2 M
Expenditures Life-to-date: $ 0.3 M
In-service Date: 2016

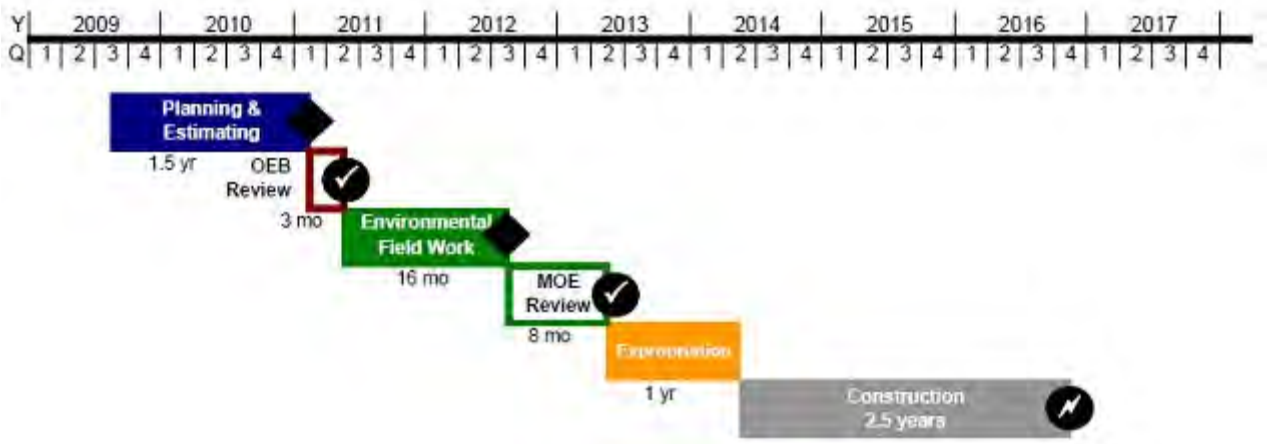
To accommodate interest and opportunities in renewable generation in Northwestern Ontario, a new 300km double-circuit 230kV transmission line is required from Wawa TS to Nipigon SS. The new line is expected to parallel the existing transmission corridor between Lakehead and Wawa. The project will increase the Northwest to Southern Ontario transfer capability by approximately 300 MW.

Project activities have been placed on hold.

Cost: G No issues
Schedule: G No issues
Issues: G OPA re-prioritization

Year-to-date Milestones:
Targeted: 8
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for May 2010	



Northwest Transmission Expansion *(Pickle Lake x Nipigon)*



Budget (Development):	$ 21.7 M
Budget (Capital):	$ 425.0 M
Expenditures Life-to-date:	$ 2.1 M
In-service Date:	2014

To incorporate hydroelectric and wind projects in the Lake Nipigon area, and to enable economic growth through increased capacity and reliability, a new 430km single circuit 230kV transmission line is needed from the Nipigon area to the Pickle Lake area. The line will accommodate up to 400 MW of renewable generation.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 4
Achieved: 2

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
Send Environmental Assessment Terms of Reference to the Ministry of the Environment (MOE) and the Ontario Ministry of Natural Resources (MNR) for informal feedback	February
No milestones planned for May 2010	



Manitoulin Island Enabler



Budget (Development):	$ 7.5 M
Budget (Capital):	$ 169.4 M
Expenditures Life-to-date:	$ 0.3 M
In-service Date:	2015

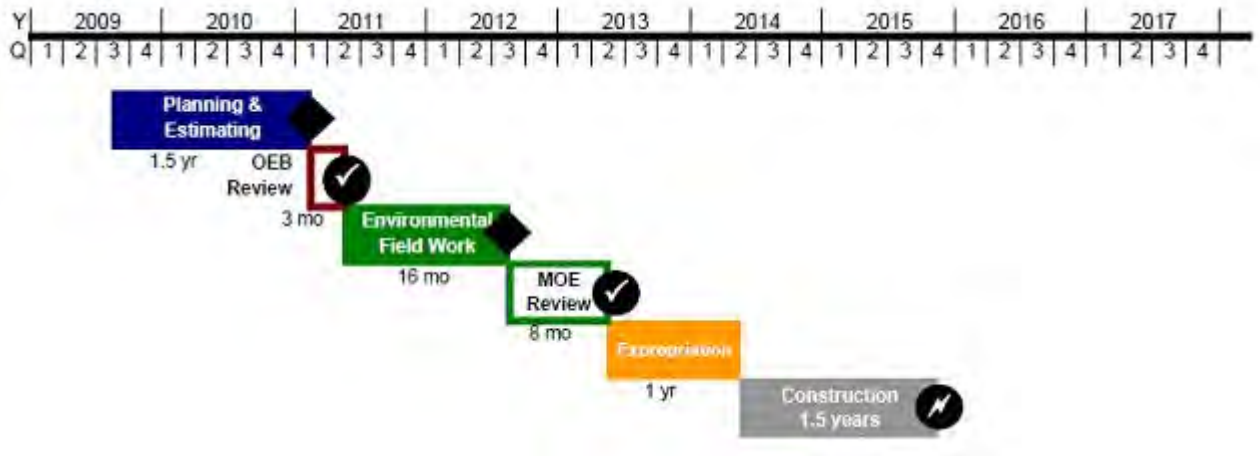
The OPA has identified Manitoulin Island as one of a number of areas with substantial renewable development potential. The enabler line will accommodate up to 500 MW of wind generation on the island via a new 230kV single-circuit transmission line approximately 80 km in length. The actual length and the terminal points will be determined on the basis of the Feed-in-Tariff (FIT) program results.

Project activities have been placed on hold. The original schedule targeted that by April 2010, a study area will be defined for the project. The OPA is not prepared to provide input to select a study area at this time and advises that the pre-consultation activities for this project be placed on hold. New schedules are under development for this project.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 10
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Milestones planned for May 2010 were not met due to OPA re-prioritization of north-central green projects.	



West of London Transmission Expansion



Budget (Development):	$ 22.7 M
Budget (Capital):	$ 706.3 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2017

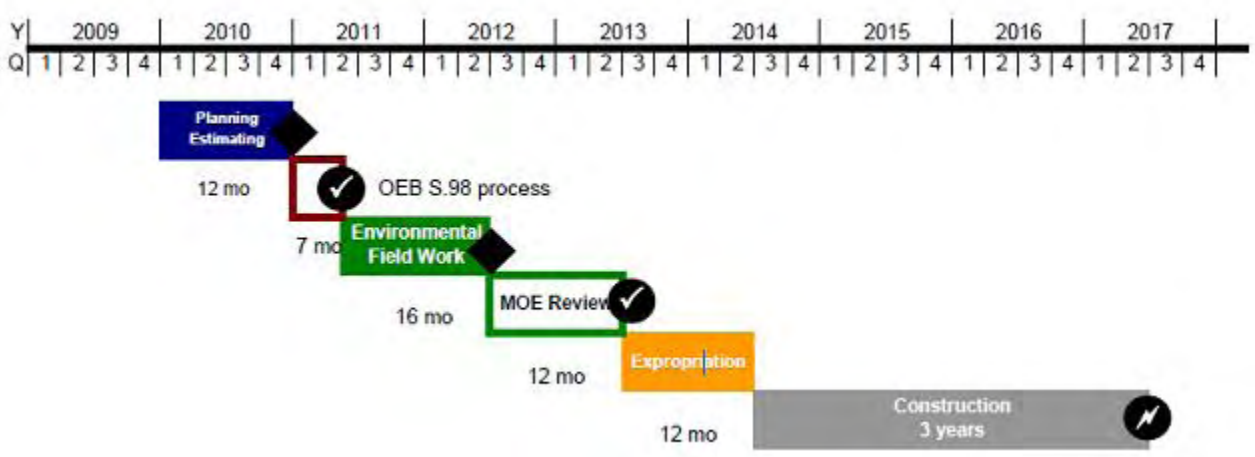
Hydro One has begun planning to identify transmission solutions that accommodate the significant interest in wind generation development in the area west of London. The OPA has advised Hydro One that approximately 1,900 MW of FIT applications were received for South Western Ontario, west of London, of which 1,400 MW cannot be accommodated given current transmission limitations. The OPA has yet to determine the capacity target for this project, which will be based on the results of the Economic Connection Tests performed on the FIT applications and other factors such as the contract with the Korean Consortium. Input is required from the OPA by June 2010. The reference plan for the project currently involves the construction of three single-circuit 500kV or 230kV transmission lines. In view of the power system connectivity and the land use profile in the region, many options need to be considered.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 8
Achieved: 5

2010 Project Milestones Achieved Year-to-Date	
Complete OPA Engagement Meeting (Identify need, timing, and scale)	February
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Development Work Cost Estimates Completed	March
Study Area Definition Completed	March



HYDRO ONE NETWORKS INC.

Programs & Projects Status

OM&A and Capital Summary — **June 2010**

($ millions)	Year-to-Date: 2010 Actual	Year-to-Date: Variance to Budget	Year-Over-Year: 2009 Actual	Year-Over-Year: Year/Year Variance	Year-End: Projection	Year-End: Variance to Budget
Transmission OM&A						
Lines	10	-	11	(1)	21	-
Forestry	13	1	11	2	23	(1)
Grid Operations	61	(1)	53	8	134	(1)
Engineering & Construction	13	-	12	1	26	-
Green Projects	3	(6)	-	3	5	(27)
Asset Mgt. & Other Operations	10	1	12	(2)	22	1
Smart Grid	-	(1)	-	-	2	(2)
Property Taxes	33	(2)	32	1	68	(1)
Other Costs	66	8	83	(17)	132	25
Total	**209**	**-**	**214**	**(5)**	**433**	**(6)**
Transmission Capital						
Lines	22	2	20	2	33	-
Grid Operations	10	-	9	1	28	-
Engineering & Construction	337	(25)	308	29	769	11
Green Projects	1	(1)	-	1	7	2
Smart Grid	-	-	-	-	-	(1)
Asset Management	-	(1)	-	-	2	-
Other Costs	34	(11)	68	(34)	100	(3)
Total	**404**	**(36)**	**405**	**(1)**	**939**	**9**

- **Transmission OM&A** year-to-date is consistent with plan. Lower than planned engineering for integrated power system plan (IPSP) work is offset by the corresponding IPSP credit to reflect the deferral of such costs for future recovery.

  OM&A is $5M, or 2%, lower than 2009 primarily reflecting a reallocation of resources in support of the capital work program, partially offset by higher preventative stations maintenance to support aging infrastructure particularly on transformers, higher requirements for corrective stations-related maintenance, expanded forestry programs, and higher IT support expenditures and infrastructure enhancements.

  Year-end OM&A is projected to be $6M, or 1%, lower than plan primarily reflecting lower expenditures for real estate, lower property tax payments and lower corporate organization requirements. At year-end, lower than planned IPSP work is offset by the corresponding IPSP credit to reflect the deferral of such costs for future recovery.

- **Transmission Capital** year-to-date is $36M, or 8%, lower than plan primarily reflecting timing of expenditures related to transmission development lines and stations programs, including the Bruce to Milton project related to reduced costs for real estate activities, timing of vendor construction mobilization on the installation of static var compensators at the Detweiler TS and Nanticoke TS project and lower than planned expenditures on the Porcupine TS and Kirkland Lake TS project due to a decision to delay contractor mobilization as a result of local soil conditions at the Kirkland Lake TS. Also contributing to the variance is lower than planned expenditures for real estate due to lower requirements.

  Capital is essentially unchanged from 2009. We continue to experience higher development lines and stations expenditures for major off-coal projects, including Bruce to Milton, Porcupine TS and Kirkland Lake TS, Nobel SS, and static var compensator installations at Detweiler TS and Nanticoke TS projects. We are also experiencing increased expenditures on the Burlington TS Switchyard Reconstruction project. These expenditures are largely offset by lower expenditures on the Cherrywood TS to Claireville TS connection, the South Western Ontario capacitor banks, the GTA West Transmission Reinforcement and the Hurontario TS to Jim Yarrow Municipal TS projects consistent with their 2010 in-service dates. Also contributing to the year-over-year variance are higher expenditures related to transmission sustainment, including the breaker installation, transformer purchases, and protection and control replacement programs, partially offset by lower Cornerstone project expenditures as a result of the project's go-live in mid-2009 and lower expenditures incurred to enhance information security at the OGCC as we completed a number of enhancements associated with North American Electric Reliability Council (NERC) requirements.

  Year-end capital is projected to be $9M, or 1%, higher than plan primarily due to requirements related to the transformer strategic sourcing initiative not included in the budget.

Major Capital Project Status

Summary June 2010

Legend:

SPI: Schedule Performance Index
Indicator of 1 means project is on schedule.
Greater than 1 means project is ahead of schedule.
Less than 1 means project is behind schedule.

CPI: Cost Performance Index
Indicator of 1 means project cost is on budget.
Greater than 1 means project cost is less than budget.
Less than 1 means project cost is higher than budget.

Projects In-Service Year-to-Date

GTA West Transmission Reinforcement

Approved Budget:	$47.6 M
Contingency:	$3.1 M
Expenditures Life-to-date:	$44.3 M
Current Projection at Completion:	$44.6 M
Approved In-service:	Feb 2010
Actual In-service:	01 Feb 2010



On February 1, 2010, the project was placed into service as scheduled, consistent with the approved in-service date. On April 7, 2010, civil cleanup and landscaping activities commenced and continue. Projection at completion is approximately $3M below the approved budget due to unused contingency allocated for soil conditions, outage delays and Winter weather work.


Hurontario Lines Construction

Hurontario SS to Jim Yarrow TS

Approved Budget:	$42.0 M
Contingency:	$6.0 M
Expenditures Life-to-date:	$27.8 M
Current Projection at Completion:	$29.0 M
Approved In-service:	Feb 2010
Actual In-service:	07 Apr 2010



On April 7, 2010, commissioning activities were completed and the project went into service as scheduled, consistent with the approved in-service date. Projected spend at completion is approximately $13M below the approved budget primarily due to contingency funds not required for risks, including poor underground conditions, construction methods for underground installations and contract delays. Cleanup activities, including right-of-way restoration, are continuing.


R19T & R21T Pot Heads at Hurontario SS End Complete

Lakehead TS – Install SVC

Approved Budget:	$22.5 M
Contingency:	$2.7 M
Expenditures Life-to-date:	$18.4 M
Current Projection at Completion:	$19.1 M
Approved In-service:	1 Dec 2009
Actual In-service:	28 Nov 2009
Project Completion:	Summer 2010



On November 28, 2009, the SVC was placed into service as scheduled, consistent with the approved in-service date. Hydro One cleanup activities continue. Projection at completion is approximately $3M below the approved budget primarily due to contingency funds not required for noise mitigation.


Lakehead SVC

Goreway TS – Add Transformation Capacity

Approved Budget:	$24.5 M
Contingency:	$1.3 M
Expenditures Life-to-date:	$23.3 M
Current Projection at Completion:	$23.4 M
Approved In-service Date:	01 May 2010
Projected In-service Date:	24 May 2010
Actual In-service Date:	23 May 2010



On May 23, 2010, commissioning activities were completed and the project was declared in service, consistent with the approved in-service date. Landscaping and cleanup activities continue. Projection at completion is approximately $1.5M below the approved budget due to contingency funds not required for mitigated risks.


Goreway 230kV Disconnect Switches

Pickering NGS – PCT System Replacement



Approved Budget:	$27.5 M
Contingency:	$2.8 M
Expenditures Life-to-date:	$20.7 M
Current Projection at Completion:	$21.4M
Approved In-service Date:	30 Jun 2010
Actual In-service Date:	21 Jun 2010

On June 18, 2010, the project was placed in service. Detail plans for removal of cabling and equipment are in progress. On June 21, 2010, the cutover work for the remaining two units was successfully completed. Cleanup activities commenced, including disposition of legacy items, and are expected to be completed by year-end. Projection at completion is approximately $6M below budget due to unused contingency allocated for risks around access to the site and uncertainty around OPG/Hydro One connection points, which were mitigated.



Standardized Protection Modules at Pickering SS

Install Capacitor Banks in South Western Ontario



Approved Budget:	$62.0 M
Contingency:	$8.0 M
Expenditures Life-to-date:	$58.3 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	31 Oct 2009
Actual In-service Date:	25 Jun 2010

On June 25, 2010, the final capacitor bank was placed into service. Cleanup work continues at Nanticoke TS and Middleport TS.



Capacitor Bank at Middleport TS

Projects in Process

Bruce to Milton



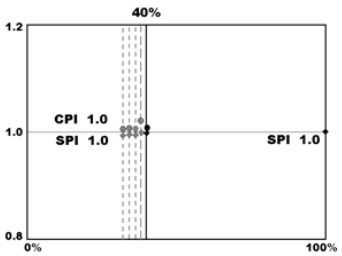
Approved Budget (Full Release):	$695.5 M
Contingency:	$29.3 M
Expenditures Life-to-date:	$277.9 M
Current Projection at Completion:	$695.5 M
Approved In-service Date:	Dec 2012

This project will construct a 500kV double-circuit line between the Bruce Nuclear Complex and the Milton SS to increase transfer capabilities for future renewable generation increases coming out of the Bruce area.

As of June 30, 2010, Hydro One reached agreements with 285 properties out of 350 to voluntarily acquire necessary land rights. Approximately 270 of these option agreements have been exercised to date. Right-of-way clearing commenced mid-March 2010 just east of the Bruce Power Complex. To date, approximately 64 of 742 tower spans have been cleared. Road construction continues and access to approximately 96 structures has been completed to date. Crews have mobilized on site and foundation installation commenced mid-May 2010. Approximately 42 structures have been completed. The Niagara Escarpment Commission hearing commenced January 26, 2010 and concluded its cross examination on March 24, 2010. The decision is outstanding without a clear indication of when it will be received. On June 22, 2010, Hydro One sent a letter to the NEC indicating the importance and need to receive a prompt decision on the appeal. The Company will continue to monitor the status of the decision.



Winona Wood



Safety:	G	No issues
Cost:	G	On February 11, 2010, the budget was approved by the Hydro One Board of Directors and assumes a favourable decision by the OEB regarding construction work in progress charges.
Schedule:	G	No issues
Issues:	Y	NEC Approvals and Land Acquisition
Key Suppliers:	G	500kV line construction contract awarded to Valard Construction Ltd and contract for right-of-way clearing awarded to Winona Wood Ltd.

Milton SS Reconfiguration



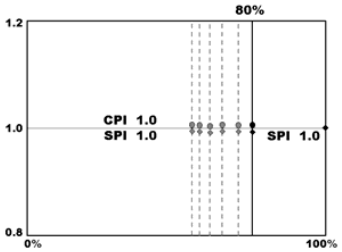
Approved Budget:	$28.7 M
Contingency:	$2.0 M
Expenditures Life-to-date:	$23.0 M
Current Projection at Completion:	$28.7 M
Approved In-service Date:	Dec 2010

This project includes the installation of additional 500kV station equipment to reconfigure the switching station at Milton in order to reduce or eliminate the need to curtail generation during forced and planned outages during construction for the Bruce to Milton project.



Existing and New GIS and Interface

Construction is progressing and civil work related to gas insulated switchgear (GIS) installation continues. On June 9, 2010, work was completed on the first phase of the GIS installation. On June 10, 2010, high voltage testing was completed successfully. Non-outage work will continue for the next three months on installation of new diameter break bays.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	ABB Inc. is the supplier of gas-insulated switchgear.

Niagara System Reinforcement



Approved Budget:	$116.0 M
Expenditures Life-to-date:	$98.1 M
Current Projection at Completion:	TBD
Approved In-service Date:	TBD

This project improves the ability of Hydro One's transmission system to deliver generation available in the Niagara peninsula and improves its ability to deliver imports from New York to loads in the rest of Ontario.



Niagara 230kV Line

Work stopped due to First Nations protest in Caledonia.

Safety:	G	No issues
Cost:	G	Under budget
Schedule:	R	Work stopped due to First Nations protest in Caledonia.
Issues:	R	First Nations land claim issue.

Claireville TS to Cherrywood TS



Approved Budget:	$117.3 M
Contingency:	$7.5 M
Expenditures Life-to-date:	$104.6 M
Current Projection at Completion:	$114.6 M
Approved In-service Date:	Dec 2010

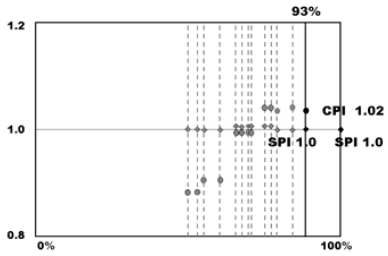
This project includes the reconfiguration and termination of existing lines to provide two additional 500kV lines between Claireville TS and Cherrywood TS, which will accommodate the increased power flows due to the new Hydro-Québec interconnection and the Portlands generating station.



Cherrywood TS Newline GIS bus and line exit

Construction activities continue to be on schedule at Claireville TS and Cherrywood TS. Commissioning on the remaining two of six breakers at Cherrywood TS is in progress. On July 2, 2010, Phase 2 at Claireville TS was completed and Phase 3 continues on schedule.

Safety:	G	No issues
Cost:	G	Projection at completion is approximately $3M below the approved budget due to an earlier than planned in-service of equipment resulting in reduced interest charges.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) AREVA is the supplier of switches at Cherrywood TS and Claireville TS. 2) ABB is the supplier for circuit breakers and CGIT is the supplier of gas-insulated buses at Cherrywood TS. 3) ABB is the supplier for gas insulated switchgear at Claireville TS.



Nobel SS: Install Series Capacitor Banks



Approved Budget:	$46.4 M
Contingency:	$3.7 M
Expenditures Life-to-date:	$36.9 M
Current Projection at Completion:	$48.8 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Aug 2010

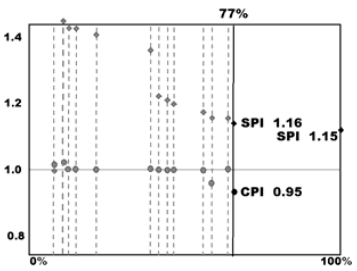
This project includes the installation of two series capacitor banks at Nobel SS, which will increase power transfer capabilities along the transmission corridors North and South of Sudbury needed to facilitate the incorporation of renewable generation in Northern Ontario.



Nobel Station

Vendor construction activities continue with foundation and platform work.

Safety:	G	No issues
Cost:	R	Projection at completion for the Hydro One portion of work is expected to be approximately $1.4M above the approved budget due to poor site conditions resulting in additional material and installation costs. In addition, the vendor has submitted a claim for approximately $1M. An IROV will be prepared.
Schedule:	G	Projected in-service date is expected to occur ahead of schedule.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract, including design, manufacturing equipment, factory inspection and testing, delivery, installation and commissioning awarded to ABB.



Install SVCs at Porcupine TS and Kirkland Lake TS



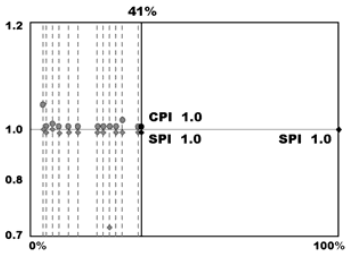
Approved Budget:	$109.0 M
Contingency:	$10.1 M
Expenditures Life-to-date:	$45.2 M
Current Projection at Completion:	$109.0 M
Approved In-service Date:	Nov 2010 (Porcupine TS and Kirkland Lake TS)
Projected In-service Date:	Nov 2010 (Porcupine TS) Mar 2011 (Kirkland Lake TS)



Porcupine SVC Site – Civil Works

This project includes the installation of two SVCs at Porcupine TS and Kirkland Lake TS, which will further increase power transfer capabilities North of Sudbury for renewable generation in Northern Ontario.

Construction activities continue on schedule for the vendor at Kirkland Lake TS and the turnkey contractor at Porcupine TS.



Safety:	G	No issues
Cost:	Y	Project is experiencing unanticipated contaminated soil at Kirkland Lake TS. The cost impact is being determined.
Schedule:	Y	Projected in-service date may be further delayed by six to eight weeks due to delays in factory acceptance testing of the complex controls system for the SVC. This delay has been determined to be non-system impactive.
Issues:	G	No issues
Key Suppliers:	G	Turnkey contract including design, manufacturing equipment, factory inspection and testing, delivery, installation, and commissioning awarded to ABB for Kirkland Lake and to AREVA for Porcupine.

Woodstock Area Transmission Reinforcement



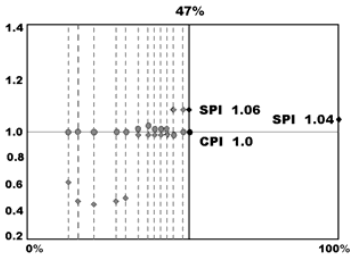
Approved Budget:	$71.6 M
Contingency:	$9.3 M
Expenditures Life-to-date:	$33.5 M
Current Projection at Completion:	$71.6 M
Approved In-service Date:	Apr 2010
Current Projected In-service Date:	July 2011



Woodstock Lines Construction

This project includes the construction of Karn TS, a 230kV double-circuit line between Ingersoll TS and Karn TS, and a 230kV double-circuit line between Karn TS and Woodstock TS.

Construction on the permanent line between Karn TS and Ingersoll TS continues on schedule. Station construction at Karn TS also continues on schedule.



Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Projected in-service date is now expected to occur in July 2011 for the completion of the permanent transmission line and completion of the system due to land acquisition delays. The delay has been determined to be non-system impactive.
Issues:	G	No issues

Nanticoke Breaker Replacement



Approved Budget:	$29.0 M
Contingency:	$2.9 M
Expenditures Life-to-date:	$27.4 M
Current Projection at Completion:	$29.0 M
Approved In-service Date:	July 2011

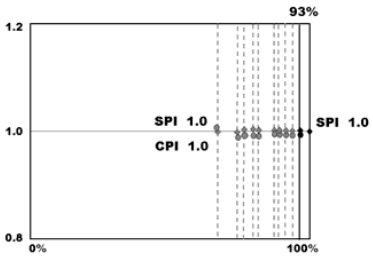
This project replaces circuit breakers and other equipment that have reached their end-of-life to reduce operational risks, maintenance and improve reliability.

Construction is continuing on schedule with foundation and electrical work. Breaker replacements continue on schedule with 11 of 14 breakers installed. Working within the constraints of OPG's outage availability, the final breaker is expected to go into service in 2011.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Nanticoke Circuit Breakers



Increase Capacity at Vansickle TS



Approved Budget:	$16.6 M
Contingency:	$1.9 M
Expenditures Life-to-date:	$8.2 M
Current Projection at Completion:	$16.6 M
Approved In-service Date:	30 Nov 2010

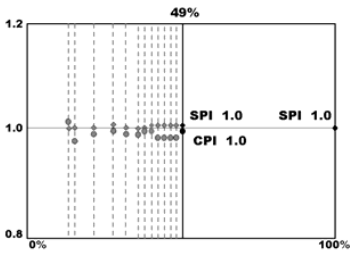
Horizon Utilities has requested the capacity of Vansickle TS be expanded to supply new loads in St. Catharines as a result of projected increases in load growth.

On July 6, 2010, the switchgear arrived on site. The two transformers are installed and are taking load and will support Brock University's and the hospital's schedule. Construction activities continue.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	Vendor delay of switchgear delivery is now resolved and the need for a contingency plan has been removed.
Issues:	G	Vendor delay of switchgear delivery is now resolved.
Key Suppliers:	G	General Switchgear & Controls Ltd. is the vendor for switchgear, and Hyundai Canada Inc. is the vendor for transformers.



Sound Barriers Complete



Burlington TS 115kV Switchyard Reconstruction



Approved Budget:	$61.0 M
Contingency:	$5.5 M
Expenditures Life-to-date:	$16.8 M
Current Projection at Completion:	$61.0 M
Approved In-service Date:	Summer 2012
Current Projected In-service Date:	Summer 2013

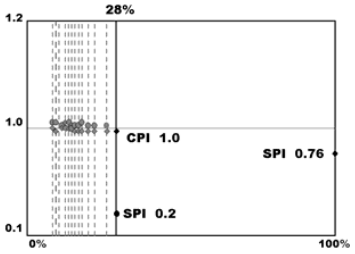


Construction Site Looking South with Existing 115kV Yard

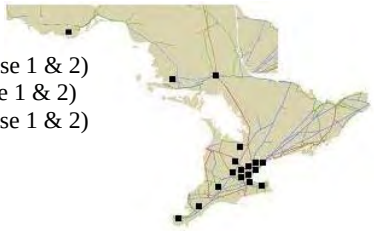
Multiple Burlington projects have been merged into a single investment to build a new 115kV switchyard on vacant property at Burlington TS.

Engineering design work continues, and civil construction continues with grading and foundation work. On July 16, 2010, construction of the relay building is expected to be completed. On June 7, 2010, electrical construction on steel structure commenced.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	R	Projected in-service date is now expected to occur in Summer 2013 after extensive discussions during finalization of the scope of work and release of the project. We are looking for opportunities to advance this.
Issues:	G	No issues
Key Suppliers:	G	Engineering, procurement and install contract awarded to PCR Contractors Inc. for 115 kV relay building.



Mitigate Reliability Issues of HV Shunt Capacitor Installations – Phase Two



Approved Budget:	$46.7 M (Phase 1 & 2)
Contingency:	$4.7 M (Phase 1 & 2)
Expenditures Life-to-date:	$26.0 M (Phase 1 & 2)
Current Projection at Completion:	$44.3 M
Approved In-service Date:	Dec 2010
Current Projected In-service Date:	Dec 2011

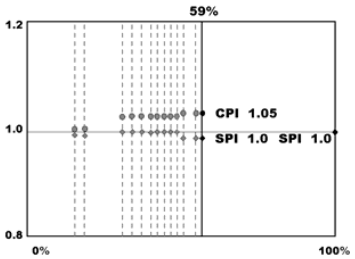


Shunt Capacitor – Burlington TS

Phase Two addresses the outstanding risks associated with Hydro One's fleet of shunt capacitor bank installations by equipping them with surge capacitors among other activities.

Construction activities continue on schedule at the first two stations. Construction at Richview TS is expected to be complete in September 2010. These are the first two of 18 stations, which are scheduled to be completed by December 2011. Construction at Burlington TS continues on schedule.

Safety:	G	No issues
Cost:	G	Projection at completion is approximately $2M below the approved budget due to contingency funds not required for potential risks that did not materialize.
Schedule:	G	No issues
Issues:	G	No issues



Churchill Meadows TS: Build New DESN



Approved Budget:	$31.0 M
Contingency:	$2.3 M
Expenditures Life-to-date:	$25.8 M
Current Projection at Completion:	$27.0 M
Approved In-service Date:	Jun 2010
Actual In-service Date:	27 Jul 2010

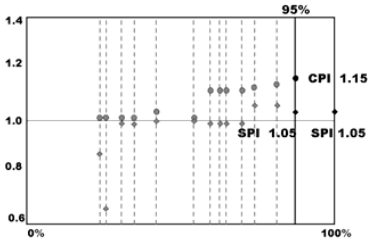
This project includes the construction of Churchill Meadows TS to relieve overloads at existing Hydro One stations in south west GTA and to meet future load growth.

On July 27, 2010, the new transformer station was declared in-service.

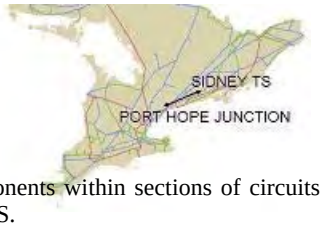
Safety:	G	No issues
Cost:	G	Projection at completion is approximately $4M below the approved budget due to contingency funds not required for mitigated risks.
Schedule:	G	No issues
Issues:	G	No issues



230 kV Yard and Station Line Entrance Structure



P3S & P4S Line Refurbishment and Equipment Replacement



Approved Budget:	$23.2 M
Contingency:	$1.7 M
Expenditures Life-to-date:	$13.5 M
Current Projection at Completion:	$23.2 M
Approved In-service Date:	May 2011

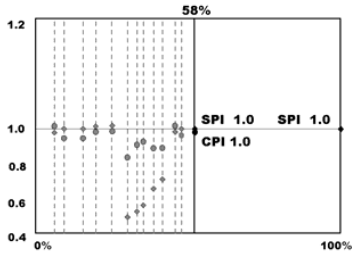
This project replaces end-of-life equipment and components within sections of circuits P3S and P4S between Port Hope Junction and Sidney TS.

On April 12, 2010, construction on P4S was completed. Construction on P3S continues on schedule.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Stringing the P4S Circuit



Longlac TS



Approved Budget:	$20.5 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$9.9 M
Current Projection at Completion:	$20.0 M
Approved In-service Date:	July 2011

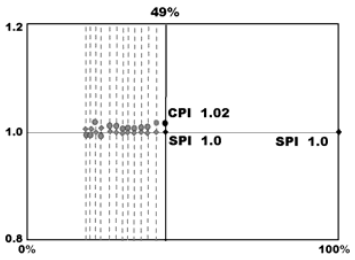
This project replaces end-of-life equipment at Longlac TS and provides additional transformation capacity to enable future connection of embedded generators and increase the station's reliability.

Engineering, procurement and construction activities continue on schedule. Construction is in progress with concrete foundations, grounding and steel structures.

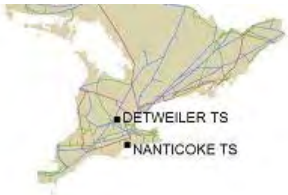
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Foundation and Spill Containment



Install SVCs at Detweiler TS and Nanticoke TS



Approved Budget:	$165.0 M
Contingency:	$28.8 M
Expenditures Life-to-date:	$29.4 M
Current Projection at Completion:	$158.7 M
Approved In-service Date:	May 2011

This project includes the installation of SVCs at Detweiler TS and Nanticoke TS to support increased generation from the Bruce nuclear plant and wind generation from the Bruce area as a short term measure prior to the in-service of the Bruce to Milton 500kV line.

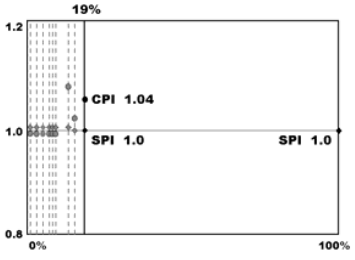
Vendor engineering activities continue at Detweiler TS. On May 3, 2010, construction of the auxiliary services to the SVC commenced and continues on schedule.

Hydro One and vendor construction at Nanticoke TS continues on schedule.

Safety:	G	No issues
Cost:	G	Projection at completion is approximately $6M below the approved budget due to competitive tenders and fixed price contract.
Schedule:	G	No issues
Issues:	G	No issues
Key Suppliers:	G	1) EPC contract for the Detweiler SVC awarded to ABB. 2) EPC contract for the Nanticoke SVC awarded to Siemens Canada Inc. and ABB is the vendor for 500kV breakers.



Nanticoke TS



Install Four Shunt Capacitor Banks at Porcupine TS, Hanmer TS and Essa TS

Approved Budget:	$26.4 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$0.3 M
Current Projection at Completion:	$26.4 M
Approved In-service Date:	Dec 2011

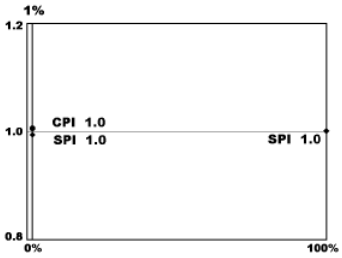


Existing Capacitor Bank at Essa TS

This project will add voltage support at: Essa TS to increase the transfer capability of the flow south interface so that all existing and committed generating facilities both north and west of Sudbury can be accommodated; Hanmer TS to increase the north-south transfer, and; Porcupine TS as part of the northeast reinforcement to accommodate new generation development in northern Ontario.

Procurement of major equipment and procurement of an engineering consultant is in progress.

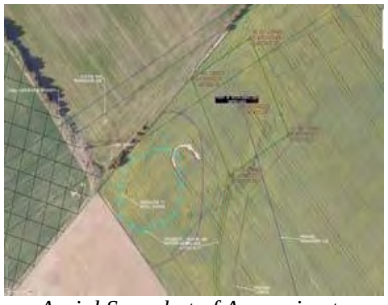
Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Spence 98.9MW Wind Farm Connection

Approved Budget:	$17.5 M
Contingency:	$1.4 M
Expenditures Life-to-date:	$0.9 M
Current Projection at Completion:	$17.5 M
Approved In-service Date:	Dec 2010



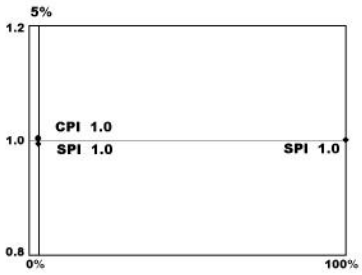


Aerial Snapshot of Approximate Location for Spence SS

This project includes the building of Spence SS, as required by the Independent Electricity System Operator (IESO), which will increase the amount of renewables that can be incorporated into the transmission system to facilitate more renewable generation connections.

Engineering for the project is 40% complete and continues on schedule. On July 5, 2010, civil construction and site grading commenced.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Build Duart TS and Line Tap



Approved Budget:	$28.2 M
Contingency:	$2.7 M
Expenditures Life-to-date:	$1.7 M
Current Projection at Completion:	$28.2 M
Approved In-service Date:	May 2012

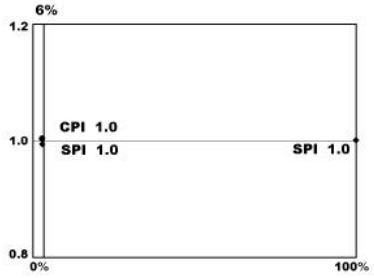
This project replaces end-of-life equipment at St. Thomas TS and provides a connection point for future generation projects, as well as reduces the impact on customer power quality. The new Duart TS and supply tap will be located about mid-way between St. Thomas TS and Kent TS.

In June 2010, the project received full approval. The land has been purchased and environmental assessment (EA) approval has been completed. Two transformers have been ordered and are expected to be delivered to supply management services by September 2010 and then on site by Spring 2011.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Aerial Map of Duart



2010-2012 Transmission Line Refurbishments on A6P

Approved Budget:	$23.6 M
Contingency:	$2.2 M
Expenditures Life-to-date:	$0.6 M
Current Projection at Completion:	$23.6 M
Approved In-service Date:	Sep 2012

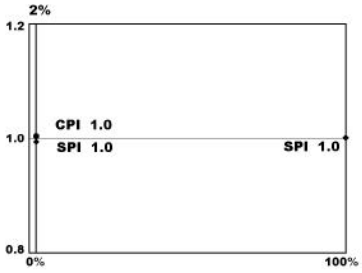
This project is designed to refurbish lines at end-of-life from reserve junction to Port Arthur TS.

On September 15, 2010, the provincial class EA is expected to be completed. Government agency and First Nation consultation is in progress. On September 22, 2010, construction is expected to commence.

Safety:	G	No issues
Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	No issues



Aerial Map of the Line Section on Circuit A6P



Perimeter Security Upgrade for Stations

Approved Budget:	$30.5 M
Expenditures Life-to-date:	$29.9 M
Current Projection at Completion:	TBD
Approved In-service Date:	Nov 2009
Current Projected In-service Date:	TBD



Razor Mesh Fencing

Perimeter security was planned to be upgraded at 45 transmission stations in the GTA as part of Hydro One's copper theft prevention strategy. Security will be established around the station perimeter and at all main gates. Razor mesh and security systems have been installed at 23 stations so far with requirements for the remaining eight under review. An Interim Review of Variance (IROV) is being prepared. Overall, the physical barrier provided by the new fence has so far been effective, even without the full monitoring system in place. At the 23 stations where the security and animal abatement fencing has been installed, we have had no reports of copper theft or power outages caused by animals.

Safety:	G	No issues
Cost:	R	An IROV is being prepared to reflect contract change orders including grounding and bonding. The degree of connectivity for security systems is also under consideration.
Schedule:	R	An IROV is being prepared for a revised in-service date due to contract change orders and training required for new technology.
Issues:	G	Fence bonding and grounding methods have been reviewed.
Key Suppliers:	G	Turnkey contract for the supply and install of razor mesh fencing and intrusion and infrared detection awarded to Safeguards of Canada Inc.

Major Green Projects Development

In September 2009, the Government of Ontario asked Hydro One to proceed with twenty green transmission projects in support of the Green Energy Act. From these twenty, seven projects have been given priority by the OPA. For these projects, a set of critical milestone activities that are under Hydro One's control will be identified.

On May 7, 2010, Hydro One received a letter from the MEI indicating that we are only to proceed with projects that enable renewable generation on the basis that they have been identified by the OPA as part of the government's green energy agenda. As a result, Hydro One has suspended all activities until formal written notice from the OPA is received.

Hydro One is currently waiting for the transmission expansion plan from the MEI. Hydro One will be able to proceed with the projects identified by the OPA upon receiving the final plan.

Summary — June 2010

North-South Transmission Expansion *(Sudbury x Barrie x GTA)*



Budget (Development):	$ 18.2 M
Budget (Capital):	$ 884.3 M
Expenditures Life-to-date:	$ 0.5 M
In-service Date:	2016

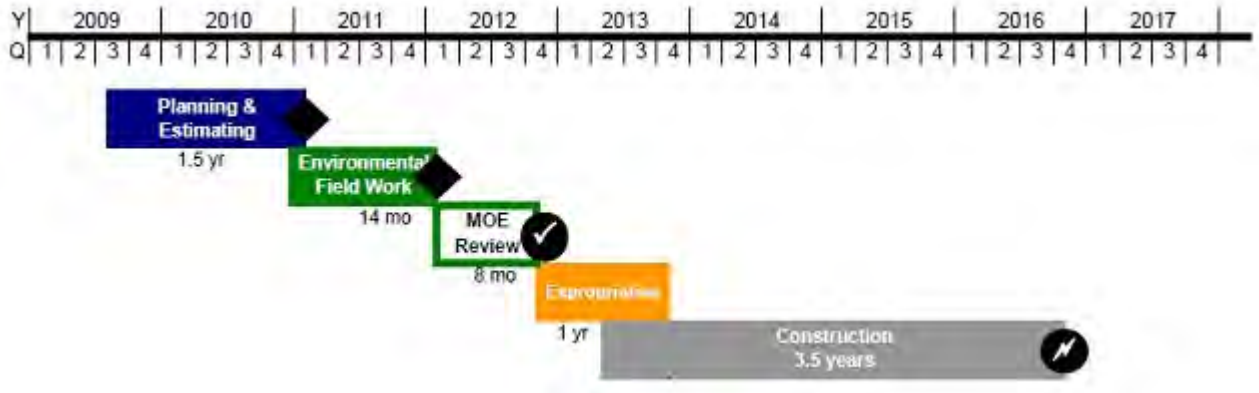
This project consists of building one additional single-circuit 500 kV line on an existing corridor from Sudbury to the Greater Toronto Area via Barrie. Overall, it will increase capacity by 1,700 MW.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 11
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for June 2010	



Sudbury x Algoma Area *(Hanmer x Mississagi)*



Budget (Development):	$ 5.8 M
Budget (Capital):	$ 459.4 M
Expenditures Life-to-date:	$ 0.3 M
In-service Date:	2014

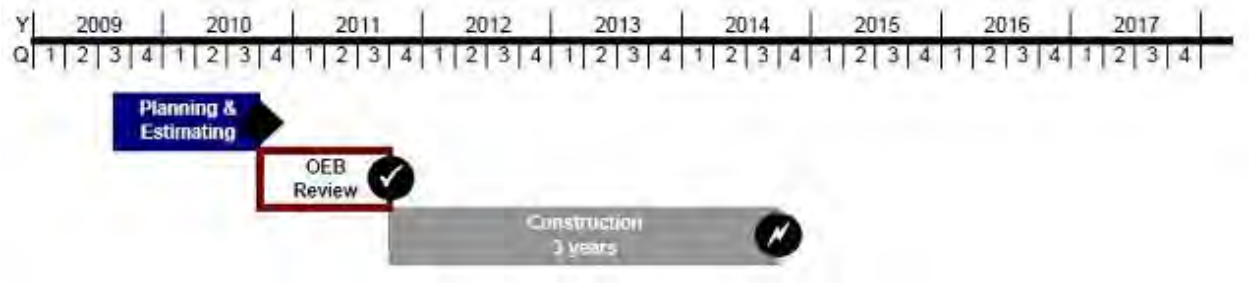
This project consists of building a second 500 kV line from Sudbury to the Algoma Area on an existing corridor. The new line will increase the electricity transfer capability by approximately 1,300 MW assuming that the existing 230 kV line is also converted to operation at 500 kV.

Project activities have been placed on hold. The original schedule targeted that by April 2010, these discussions would be finalized and a reference plan would be selected. The OPA is not prepared to provide input to select a reference plan at this time and advises that the consultation activities for this project be placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 9
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
Milestones planned for June 2010 were not met due to OPA re-prioritization of north-central green projects.	



Goderich Enabler



Budget (Development): $ 5.0 M
Budget (Capital): $ 114.8 M
Expenditures Life-to-date: $ 0.2 M
In-service Date: 2014

The OPA has identified Goderich as one of a number of areas with substantial renewable development potential. Based on the latest information received from the OPA regarding the possible location of the renewable generator proponents, two main options are under consideration. Plans are subject to change as further information is provided by the OPA and as the environmental assessment and preliminary engineering work is carried out.

Project activities have been placed on hold.

Cost: G No issues
Schedule: G No issues
Issues: G OPA re-prioritization

Year-to-date Milestones:
Targeted: 7
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
OPA Engagement – Discuss Project Need and Timing	January
Scope of Work Completed	February
Scope of Work for Options sent to E&CS	March
Development Work Cost Estimates Completed	March



East-West Transmission Tie *(Nipigon x Wawa)*



Budget (Development): $ 12.1 M
Budget (Capital): $ 511.2 M
Expenditures Life-to-date: $ 0.3 M
In-service Date: 2016

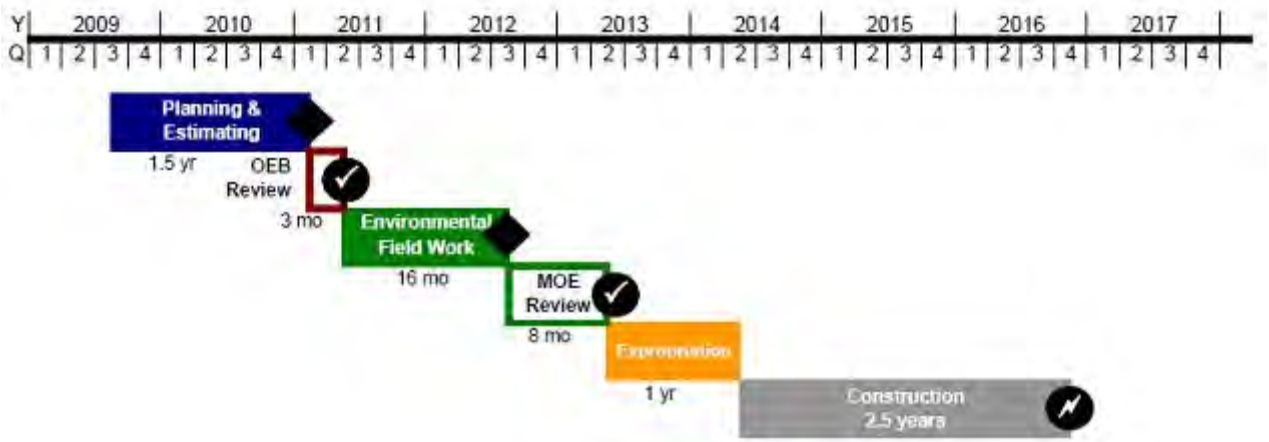
To accommodate interest and opportunities in renewable generation in Northwestern Ontario, a new 300km double-circuit 230kV transmission line is required from Wawa TS to Nipigon SS. The new line is expected to parallel the existing transmission corridor between Lakehead and Wawa. The project will increase the Northwest to Southern Ontario transfer capability by approximately 300 MW.

Project activities have been placed on hold.

Cost: G No issues
Schedule: G No issues
Issues: G OPA re-prioritization

Year-to-date Milestones:
Targeted: 10
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	January
Scope of Work for Options sent to E&CS	January
No milestones planned for June 2010	



Northwest Transmission Expansion *(Pickle Lake x Nipigon)*



Budget (Development):	$ 21.7 M
Budget (Capital):	$ 425.0 M
Expenditures Life-to-date:	$ 2.1 M
In-service Date:	2014

To incorporate hydroelectric and wind projects in the Lake Nipigon area, and to enable economic growth through increased capacity and reliability, a new 430km single circuit 230kV transmission line is needed from the Nipigon area to the Pickle Lake area. The line will accommodate up to 400 MW of renewable generation.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 4
Achieved: 2

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
Send Environmental Assessment Terms of Reference to the Ministry of the Environment (MOE) and the Ontario Ministry of Natural Resources (MNR) for informal feedback	February
No milestones planned for June 2010	



Manitoulin Island Enabler



Budget (Development):	$ 7.5 M
Budget (Capital):	$ 169.4 M
Expenditures Life-to-date:	$ 0.3 M
In-service Date:	2015

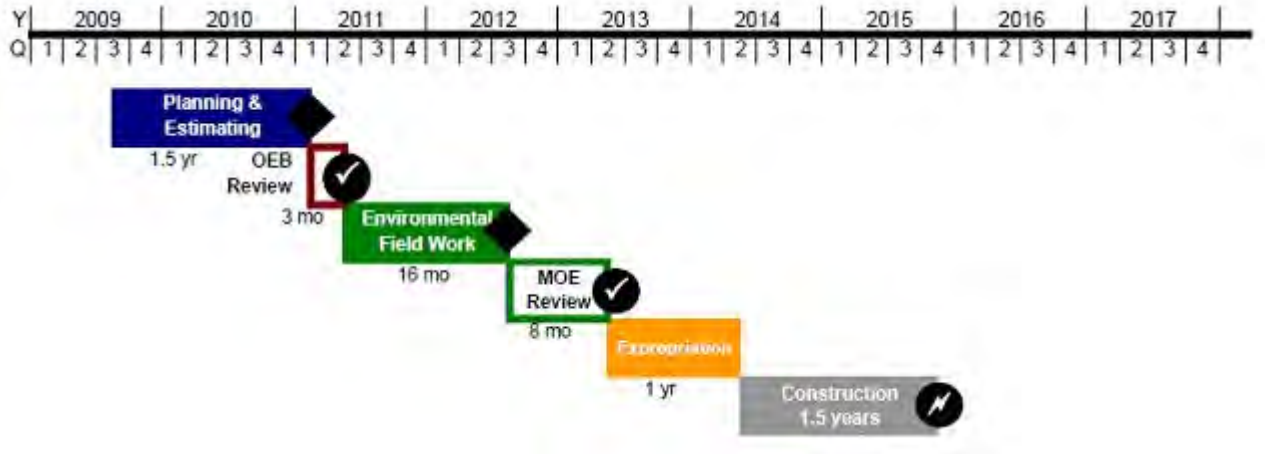
The OPA has identified Manitoulin Island as one of a number of areas with substantial renewable development potential. The enabler line will accommodate up to 500 MW of wind generation on the island via a new 230kV single-circuit transmission line approximately 80 km in length. The actual length and the terminal points will be determined on the basis of the FIT program results.

Project activities have been placed on hold. The original schedule targeted that by April 2010, a study area will be defined for the project. The OPA is not prepared to provide input to select a study area at this time and advises that the pre-consultation activities for this project be placed on hold. New schedules are under development for this project.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 13
Achieved: 4

2010 Project Milestones Achieved Year-to-Date	
Internal List of Potentially Affected First Nations & Métis Completed	January
First Contacts with Potentially Affected First Nations & Métis Completed	January
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Milestones planned for June 2010 were not met due to OPA re-prioritization of north-central green projects.	



West of London Transmission Expansion



Budget (Development):	$ 22.7 M
Budget (Capital):	$ 706.3 M
Expenditures Life-to-date:	$ 0.1 M
In-service Date:	2017

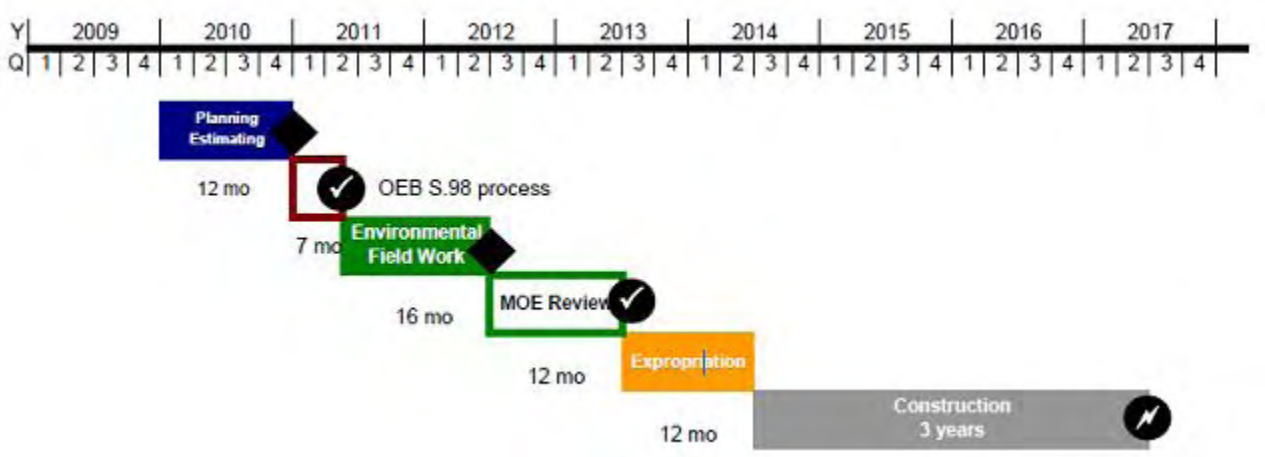
Hydro One has begun planning to identify transmission solutions that accommodate the significant interest in wind generation development in the area west of London. The OPA has advised Hydro One that approximately 1,900 MW of FIT applications were received for South Western Ontario, west of London, of which 1,400 MW cannot be accommodated given current transmission limitations. The OPA has yet to determine the capacity target for this project, which will be based on the results of the Economic Connection Tests performed on the FIT applications and other factors such as the contract with the Korean Consortium. Input is required from the OPA by June 2010. The reference plan for the project currently involves the construction of three single-circuit 500kV or 230kV transmission lines. In view of the power system connectivity and the land use profile in the region, many options need to be considered.

Project activities have been placed on hold.

Cost:	G	No issues
Schedule:	G	No issues
Issues:	G	OPA re-prioritization

Year-to-date Milestones:
Targeted: 11
Achieved: 5

2010 Project Milestones Achieved Year-to-Date	
Complete OPA Engagement Meeting (Identify need, timing, and scale)	February
Scope of Work for Options Completed	February
Scope of Work for Options sent to E&CS	February
Development Work Cost Estimates Completed	March
Study Area Definition Completed	March



School Energy Coalition (SEC) INTERROGATORY #4 List 1

Interrogatory

Ref: [Ex. A/8/1. Attach 1-3] With respect to the Financial Statements

a. Auditors' Opinions. Please explain the reason for the restriction on use contained in the last two sentences of the penultimate paragraph.

b. Please provide copies of the audited financial statements of the distribution businesses of the corporation for the same periods (separately or combined as one total distribution business), and the audited financial statements of the corporate entity Hydro One Networks Inc., for the same periods. Please identify and explain any areas in which the total of the Transmission Business statement filed herein and the Distribution Business statement(s) do not coincide with the consolidated corporate audited financial statements on a line by line basis.

c. 2007 P. 15. Please provide details of all regulatory asset recoveries and refunds taking place during 2010 that will not be continuing at the same recovery or refund rate (as the case may be) throughout the test periods. Where that is the case, please quantify the impact on rates and identify when it will begin to occur.

d. 2007 P. 17. Please advise the impact, if any, on this Application of the decision to account for the pension plan as if it were a defined contribution plan although it is in fact a defined benefit plan.

e. 2007 P. 18. Please provide a table comparing, for each year from 2006 through 2012 inclusive, the benefits actually paid to or for the benefit of plan members under Employee Future Benefits other than Pension, and the OM&A cost of the plan accrued by the Applicant for income calculation purposes.

f. 2007 P. 18. Please advise whether the estimated environmental expenditures in Note 11 were spent as planned, and advise/explain any variances between forecast and actual costs.

g. 2008 p. 9. Please confirmed that land is not depreciated, even after being transferred to an active capital project that has come into service.

h. 2008 p. 20. Please provide a copy of the December 31, 2009 actuarial valuation of the pension plan.

i. 2008 p. 20. Please confirm that the employee future benefits other than pension are an unfunded liability of the Applicant.

j. 2008 p. 21. Please explain why the $145 million of PCB spending is mainly expected to occur in the 2013 to 2025 period. Please advise whether this is still expected to be the case.

k. 2009 p. 11. Please advise the impact on revenue requirement, if any, of the reclassification of software from fixed assets to intangible assets.

l. 2009 p. 23. Please describe the factors that led to an increase in the future PCB cleanup costs from $145 in 2008 to $162 million in 2009. Please advise the current estimate of these future costs.

m. 2009 p. 25. Please provide details of the interest rate swaps done on January 22, 2010 including at least the nominal interest rate and term, the transaction costs, and the new effective interest rate and term. Please estimate the revenue requirement impacts of those swaps in the test periods.

Response

a. The external auditor's report is the responsibility of the external auditor. It is our understanding that last two sentences reflect that the financial statements of Hydro One Networks' Transmission Business are prepared by management on "a carve out basis" (see "basis of accounting" in Note 2 on page 7 of the exhibit). Further, they do not portray the financial results of a self-standing legal entity. As such, users who require general purpose financial statements may require additional information from that which the financial statements are intended for, and that is to satisfy regulatory requirements. The wording should not be considered an audit opinion reservation.

b. The audited consolidated financial statements of Hydro One Inc. include the audited results of the holding company as well as its subsidiaries including Hydro One Networks Inc., Hydro One Remote Communities Inc., Hydro One Brampton Networks Inc, and Hydro One Telecom Inc. Within the audited consolidated financial statements, separate segmented information is provided for the Distribution, Transmission and other business segments. Segmented data does not directly tie to standalone subsidiary financial statements due to consolidation eliminating entries.

Unaudited financial statements of Hydro One Networks Inc. are prepared for tax purposes. These unaudited financial results include the separate audited financial results of Networks' Transmission and Distribution businesses, as well as the unaudited financial results of a separate, unregulated business unit that reports the results of Networks' 5 Nations Agreement.

The relevant Hydro One Transmission financial statements for this application are filed at Exhibit A, Tab 8, Schedules 1 and 2.

c. Regulatory accounts where recoveries are taking place through to December 31, 2010 and will not continue into the test years are listed as follows:

Accounts approved for recovery in the EB-2006-0501 decision (with a disposition period 4 years):

- Market Ready
- Export and Wheeling Fees

Accounts approved for recovery in the EB-2008-0272 decision (with a disposition period of 18 months):

- Tax Rate Changes
- OEB Cost Assessment Differential
- Pension Cost Differential

The following table shows the amounts approved for disposition and do not continue in the test years and therefore do not impact the test years:

Account	Approval Amount $M
Tax Rate Changes	(13.9)
OEB Cost Assessment Differential	(4.2)
Pension Cost Differential	(0.2)
Market Ready	16.4
Export & Wheeling Fees	(48.8)
Total	**(50.7)**

d. There would be no impact on the revenue requirement because Hydro One records pension costs based on cash contributions for rate filing purposes consistent with past Board decisions. Under IFRS, this treatment will continue consistent with EB-2008-0408, Appendix 2, Item 5.3, page 42.

e.

Millions

Year	Benefits Paid	OM&A cost
2006	14	31
2007	17	26
2008	17	23

2009	19	20
2010	*	20
2011	*	21
2012	*	23

*** not forecast**

f. Actual Transmission environmental expenditures for PCB and LAR work were $3 million and in 2008 and $2 million in 2009, compared to the projections of $4 million in 2008 and $3 million in 2009 in the referenced exhibit. The numbers projected in the note to the financial statements were developed in mid-2007 as part of the annual provision update process.

g. Hydro One depreciates only retail distribution and communications classes as the purchase price of these properties is not expected to be recoverable through sale when they are no longer required for operational purposes. Both the CICA Handbook section 3060 and the IAS 16 on Property, Plant and Equipment both indicate that it is appropriate to depreciate land under certain circumstances.

h. The actuarial valuation effective December 31, 2009 is not expected to be available until the Fall. Per I-1-60, the current estimate of cash contributions for 2010 is approximately $140 million.

i. The Company's liability for employee future benefits other than pension is an unfunded obligation.

j. The year 2025 is the final year to achieve compliance with Environment Canada's PCB regulations. Hydro One now expects to incur its Transmission-related PCB management expenditures more evenly over the period from 2011 to 2025. The cash flow assumptions that were disclosed in the 2008 audited financial statements represented management's initial projections following Environment Canada's regulatory changes in September 2008. These estimates were used to derive the environmental provision late in 2008. Subsequent business planning and provision estimate updates resulted in a revised pattern of estimated cash flows. The revision in estimate can be seen in the analogous note on page 23 of Exhibit A, Tab 8, Schedule 1 - Attachment 3 - Tx 2009 Financial Statement.

k. The reclassification of software from fixed asset to intangible assets to comply with a change in CICA standards affected balance sheet disclosure only. It had no impact on the revenue requirement.

l. The provision estimate and related disclosures included in the Transmission Business' audited financial statements for 2009 are based on meeting current rather than expected future regulatory requirements. Accounting standards require the obligation in the financial statements to be valued based on existing legal or regulatory requirements, even if future favourable changes are expected. As such, the current

cost estimate disclosed in the 2009 Transmission financial statements does not include the potential favourable impact of changes in the text or interpretation of the PCB regulations issued by Environment Canada in September 2008.

Hydro One's 2008 estimate of the future cost of removing PCBs from its Transmission system was developed within a relatively short period of time after the issuance of Environment Canada's regulations. In late 2009, the estimate was completely updated to reflect additional information developed through the establishment of a formal work program to centralize management of the PCB issue.

Some of the factors revised in the preparation of the 2009 provision cost forecast included: updated estimated engineering costs for various types of work; better asset quantity information from SAP; better estimates of the percentage of assets in service prior to 1985 and requiring inspection and testing; impact of planned changes in work approaches; and update of percentage of assets expected to require retrofilling versus replacement.

m. Details of the interest rate swaps done are provided on lines 16 to 22 of page 4, Exhibit B1, Tab 2, Schedule 1. The swaps have a total notional principal amount of $500 million and convert the note issued into variable or floating rate debt paying an effective interest rate of three month banker's acceptance rate plus 40 basis points. There is no revenue requirement impact as this variable rate debt has been included as part of the deemed short term amount equal to 4% of rate base consistent with the Board's December 11, 2009 Cost of Capital Report.

School Energy Coalition (SEC) INTERROGATORY #5 List 1

Interrogatory

Ref: [Ex. A/9/1] With respect to the 2008 Annual Report

a. P. 1. Please reproduce the 'Capital Expenditures" chart, but with the years 2009 (actual), 2010 (6+6), 2011 and 2012 (forecast) added, including all GEGEA related spending.

b. P. 2. Please provide a copy of the Strategic Plan referred to.

c. P. 2. Please provide copies of the protocol agreements referred to.

d. P. 3. Please provide a copy of any report to the Board of Directors, or any committee of the Board, on the completion of the first phase of the Cornerstone Project in 2008. Please provide the most recent report to the Board or any committee of the Board on the results of the Cornerstone project today, including any comparison to forecast costs and benefits.

e. P. 5. Please provide a chart showing, on an annual basis from 2006 through 2012, the number of new hires in each major job category, the number of retirements in that category, and the number of voluntary or involuntary non-retirement departures on that category. Please provide the most recent report to the Board or any committee of the Board with respect to the "enormous human resource challenge" referred to, including results to date. If there is a current plan in place relating to how to deal with this challenge, please provide a copy of that plan.

f. P. 7. Please provide a copy of the Greener Choices report/program and the results of the energy audit referred to.

g. P. 9. Please provide the most current copy of any plan or other document showing the "150 major infrastructure projects" that the Applicant will initiate over the next ten years.

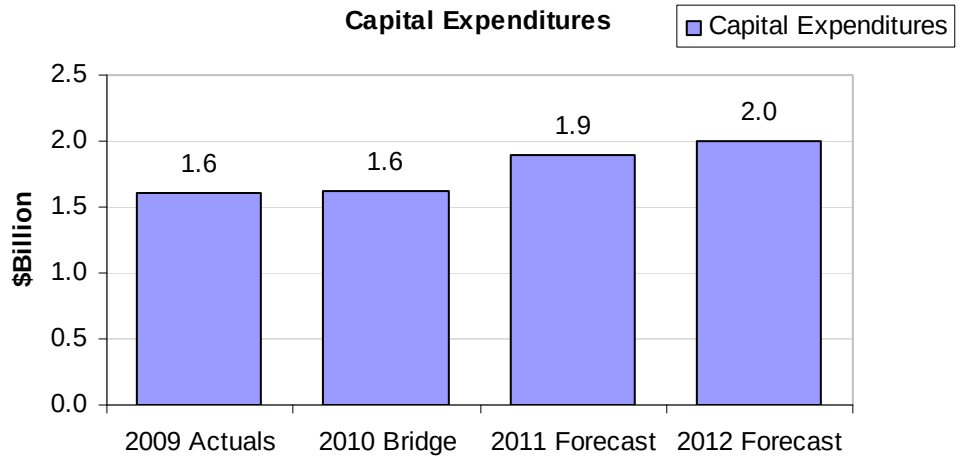
h. P. 11. Please describe the status of the deal with OCE, and provide any summary document showing the costs and benefits of the initiative.

i. P. 20. Please compare actual capital spending in 2009 to the $950 million budget, and explain any material differences.

j. P. 24. Please file the current Memorandum of Agreement with the province, and any directives currently in place under the terms of that Agreement.

Response

a. Please find the requested table showing 2009 Actuals, 2010 Bridge and 2011 and 2012 Forecast. For more details on 2009 Actuals, please refer to 2009 Annual Report. 2010 semi-annual information is not publically available.



b. Please see Attachment 1.

c. Hydro One has confidential agreements with Métis Nation of Ontario and Saugeen Ojibway Nations. Please see Attachments 2 for redacted version of the Haudenosaunee – Hydro One Agreement.

d. Please see Attachments 3 and 4.

e.

New Hires, Retirements and Termination by Major PWU Job Categories 2006-2009*

	Area Distribution Engineering Technician	Controller	Protection and Control Technician	Regional Maintainer - Forestry	Regional Maintainer - Electrical	Regional Maintainer - Lines
2006						
New Hires	7	3	0	10	18	3
Retirement	2	0	1	4	2	6
Termination (Voluntary & Involuntary)	2	0	0	1	1	7
2007						
New Hires	19	5	0	45	29	102
Retirement	7	2	1	5	5	11
Termination (Voluntary & Involuntary)	3	1	0	2	2	14
2008						
New Hires	17	0	4	0	1	2
Retirement	7	4	4	3	1	20
Termination (Voluntary & Involuntary)	4	1	0	1	2	7
2009						
New Hires	27	15	10	23	14	47
Retirement	3	2	1	8	4	25
Termination (Voluntary & Involuntary)	3	0	0	2	2	5

***** This report reflects regular employees only and does not include Hiring Hall Apprentices.

New Hires, Retirements and Termination by Society Grades 2006-2009

	MP2	MP3	MP4	MP5	MP6
2006					
New Hires	0	0	0	0	0
Retirement	0	1	4	4	2
Termination (Voluntary & Involuntary)	6	3	5	4	0
2007					
New Hires	4	1	14	4	0
Retirement	0	3	3	6	2
Termination (Voluntary & Involuntary)	3	1	8	11	0
2008					
New Hires	66	3	21	4	0
Retirement	1	3	9	12	2
Termination (Voluntary & Involuntary)	15	0	2	3	0
2009					
New Hires	49	4	25	2	0
Retirement	1	1	5	5	0
Termination (Voluntary & Involuntary)	9	0	7	4	0

For retirement information for 2010-2012 please see Exhibit I, Tab 2, Schedule 21 Part a). For headcount information for 2010-2012 please see Exhibit I, Tab 4, Schedule 35. Hydro One does not forecast voluntary and involuntary termination

Please see Attachment 5 for the Staffing Strategy presented to the HR Committee of the Board in August 2009. Please note, the flexible work hours in Table 1 of the memo have been redacted as this information would impact labour contract negotiations.

f. In 2008 Fleet Services developed the Green Fleet Program and from the program a variety of initiatives and measurements were undertaken for 2009 and 2010 which resulted in our application for a Fleet Eco Audit with E3 Fraser Basin Council, as well as, the results of which translated to the gold rating from Canada's Energy, Environment and Excellence group. Please see Attachments 6 and 7 documents relating to the aforementioned.

g. This reference is to all of Hydro One's 150+ major planned infrastructure projects across transmission, distribution, Hydro One Brampton Networks, Hydro One Remote Communities and Hydro One Telecom. Relevant to this proceeding, the 104 transmission major planned infrastructure projects with expenditures in 2011 and 2012 are listed in Exhibit D2, Tab 2, Schedule 2 and the Investment Summary Documents in Exhibit D2, Tab 2, Schedule 3 provide the plan information for these projects.

h. Hydro One is partnered with the Ontario Centres of Excellence and First Solar Farms Canada Inc., BlueWater Power, and London Hydro in the Large-scale Photovoltaic Solar Power Integration in Transmission and Distribution Networks initiative. Hydro One is contributing $400k to this $6M initiative. The benefits being gained by this initiative are in terms of the studies and intellectual property for the use of solar farms as storage devices, the use of renewable generation as FACTS devices to increase transmission capacity and the implications of wind and snow loading on the performance of solar arrays as further described in the summary document, Attachment 8.

i. Please note, the reference to P. 20 is incorrect, the capital spending for 2009 should reference P. 30. The actual capital expenditures for 2009 amounted to $918 million. The material differences are primarily due to delays associated with our major transmission capital projects; including Environmental Assessment delays resulting in the deferral of the Bruce to Milton project, work at Porcupine TS & Kirkland Lake TS, Nobel SS, Nanticoke TS, and end of life transformer work at Woodroffe TS. This is partially offset with higher than planned spending on project work at Cherrywood to Claireville TS and higher Lines emergency restoration work resulting from downed transmission towers in the northeastern part of the province.

j. Please see Attachment 9 for a copy of the current Memorandum of Agreement with the Province.

HYDRO ONE STRATEGIC PLAN

The Five Year Vision 2010-2014






Innovation & Leadership: Renewing Ontario's Power Grid

hydro one

HYDRO ONE STRATEGIC PLAN:
The Five-Year Mission and Vision (2010-2014)

Our Strategic Plan builds on the company's strong commitment to the Province of Ontario and is shaped by our Values. It lays out a set of clear objectives to position Hydro One to achieve its Mission and Vision.



In planning and executing our work, everything we do supports our Mission, Vision and Strategic Objectives



INTRODUCTION – STRATEGIC CONTEXT

Since we last issued our strategic plan in December 2008, the most significant factor affecting Hydro One and the entire electricity industry in Ontario is the *Green Energy and Green Economy Act* (GEGEA). During the same period, we experienced a world-wide recession and the significant government deficits associated with easing the impact on citizens and businesses around the globe.

Hydro One's challenge is to strike a balance between the expenditures associated with supporting the implementation of the GEGEA and the execution of our sustainment programs with the realities of rate impacts on customers. The implementation of the GEGEA will allow the province to achieve a greener energy supply including the shut down of coal stations. This should also stimulate a renewable energy industry in Ontario. The work required and investment to realize the potential from the GEGEA will also provide significant economic opportunities across the province.

Connecting the number and diversity of renewable generators on Hydro One's transmission and distribution networks is an enormous and technically complex task. Hydro One has initiated an unprecedented level of development work to ensure we are in a position to provide the transmission and distribution solutions necessary to implement the GEGEA. At the same time, we are prioritizing work to balance the need for new facilities with the associated increases in rates necessary to finance the growth. Recently, the Ontario Power Authority announced a total of $9 billion in new generation investment that has been awarded to almost 700 projects under the new Feed-in-Tariff program.

Hydro One has reviewed and refined its strategic plan and associated investment decisions to address the significant challenges we face and to fulfill the objectives of the GEGEA and best serve the energy needs of our customers. Our plan builds on the Company's mission and vision, and positions Hydro One to deliver its strategic objectives and the mandate that is part of the Memorandum of Agreement with our shareholder, the provincial government (Attached as Appendix 1).

We measure our success by how well we provide safe, cost-effective and reliable electricity delivery services to our customers and by providing increasing enterprise value to our shareholder. We also measure our success through our ability to anticipate and adapt to change in our industry. We will work collaboratively with the government and other energy agencies and regulators to establish priorities in a rapidly changing landscape.

Our Mission and Vision and Values

Hydro One's mission and vision have been refined to recognize the unique role we play in the economy of the province and as a provider of critical infrastructure to all our customers.

We will be an innovative and trusted company delivering electricity safely, reliably, and efficiently to create value for our customers.

OUR STRATEGIC PLAN IS DRIVEN BY OUR VALUES:

Health and Safety - Nothing is more important than the health and safety of our employees and those who work on our property, as well as maintaining a safe environment for the public.

Excellence - We achieve excellence through continuous training, ensuring we are prepared and equipped to deliver high quality and affordable service, with integrity.

Stewardship - We invest in our assets and people to build a safe, environmentally sustainable electricity network in a commercial manner.

Innovation - We innovate through new processes, people and technology to allow us to find better ways to meet the needs of our customers.

Our Business

Hydro One's business is continually evolving to meet the changing needs of our customers, assets, regulatory requirements and government policy. Our transmission and distribution systems have served our customers well for over a century and will continue to do so. However, an aging asset base, emerging technologies and the need to connect clean and renewable generation are challenging us to recalibrate and establish more flexible and smart electricity grids.

Hydro One's facilities are the backbone of Ontario's electricity system. We own and operate electricity transmission and distribution facilities across the province of Ontario. Our operations are managed as a single integrated organization sharing a multi-skilled workforce, equipment and corporate services. Our world-class high voltage transmission business is one of the largest grids in North America, delivering 97 per cent of the province's power supply. Our low voltage distribution business serves a predominately rural customer base, covering 75 per cent of the province's geography but only 28 per cent of Ontario's customers. Hydro One, through its subsidiary Hydro One Telecom, also operates a significant fibre optic network throughout the province. Our urban subsidiary, Hydro One Brampton, provides high quality and cost-effective service to over 130,000 customers.

Hydro One also generates and supplies power in the most remote parts of the province, where the customer base is largely First Nations in 'off-grid' communities.

Our World

The need to rapidly reduce the energy sector's carbon footprint dominates current environmental decision-making, leading to high expectations for immediate action to reduce power demand and to expand clean energy supply, both renewable and nuclear. The move to cleaner power sources in Ontario creates challenges and opportunities for Hydro One's transmission and distribution systems. Significant amounts of renewable power sources tend to be far from major markets and served by distribution systems designed to deliver power, not to collect it. Innovation is fundamental to creating a grid that is responsive to increasingly decentralized power production, often referred to as distributed generation. We have an opportunity to renew and optimize our existing assets in a way that allows us to effectively integrate renewable and distributed generation.

For the first time in decades, we are entering a period of major capital expansion in both transmission and distribution, consisting of both infrastructure renewal and the development of new facilities to deliver the GEGEA. This represents an opportunity for growth and renewal in enterprise value for our shareholder and the creation of essential infrastructure for the province's economy. This expansion, however, must be carefully managed within an environment of massive worldwide infrastructure growth and renewal that is constraining supply of goods and services and increasing commodity costs. As world economies are slowly recovering from past volatility, we need to maintain our high credit rating as this will be necessary to underpin the financing of our major capital expenditure programs.

We have a large number of employees retiring and many new employees joining the Company. New employees bring new skills and attitudes, but we need to share with them the depth of knowledge of older employees and to ensure all employees are highly engaged in the work they do every day. In fact, Hydro One has adopted the Q12 Employee Engagement survey developed by Gallup and incorporated this into our strategic objectives. Effective recruitment, training and knowledge transfer programs are being employed to proactively manage the changing demographics.

Our Customers' World

Our customers expect and deserve reliable power at reasonable rates. Our strategy and operating plans must recognize that rates will need to finance the necessary investment in infrastructure while maintaining affordable and reliable service. Our customers also face a growing array of changes and challenges. While customer satisfaction with our performance remains strong, our customers increasingly look to us to help them manage their use of power, maintain high levels of service reliability and keep prices reasonable. With the introduction of smart meters and rising power prices in the coming years, we will face increasing demands from our customers and additional challenges in meeting our objectives for Customer Satisfaction. We know from past research that the overall price of electricity has a direct impact on the level of customer satisfaction. We continue to develop services and solutions to respond to these needs and to create value for our customers.

Policy Environment

Policy continues to evolve as government balances the requirements of cost, reliability, financial returns, and the environment - the GEGEA embodies these realities. Hydro One determines its priorities within this environment, within acceptable cost increases for our customers, and within our commercial and fiduciary responsibilities. As one player in a hybrid and complex system of interlinked accountabilities, Hydro One needs to work closely with other agencies, the government and the sector to promote practical measures in support of the GEGEA.

Our planning exercise has identified challenges that are fundamental to our business: timelines for approvals of major new projects under the GEGEA; technological advances in how electricity is generated, transmitted and metered; increasing construction and equipment costs; increasing customer demand for energy efficiency and associated new technologies; aging asset renewal; and intensification of environmental concerns with a particular focus on carbon constraint policies. We also operate in a highly regulated environment and our financial flexibility will be dependent upon future decisions made by the Ontario Energy Board to balance service and cost which could ultimately affect our ability to undertake much needed new investment.

The current environment also tells us that we need to be prepared for even more changes in policy, technology, markets, and industry structure. We are at the beginning of a period of uncertainty and change that will reshape our industry. We must therefore remain flexible to a changing environment by taking an innovative and leadership approach wherever practical. Embracing innovation, showing leadership, and staying focused on our customers' needs are key to navigating this changing policy environment.

Our Future

It is essential our strategic plan preserves a flexible, nimble, and responsive approach to running our business. We must adopt innovative approaches and flexible technologies, yet be prudent and keep our focus on reliability and affordability when we make our choices. We continue to build an understanding with our customers, government, stakeholders and regulators that developing a smarter grid will provide major benefits, while recognizing that it could entail major costs that must be recovered from ratepayers across the province.

Developing a leadership position in the dialogue around the future of the power sector in Ontario requires that we demonstrate our commitment to innovation, staff development and invest in building a solid and credible base of research on cutting-edge technologies. Our research projects, in partnership with Ontario universities and with the Ontario Centres of Excellence, are helping create that base. We are also launching pilot projects that take that research to the field.

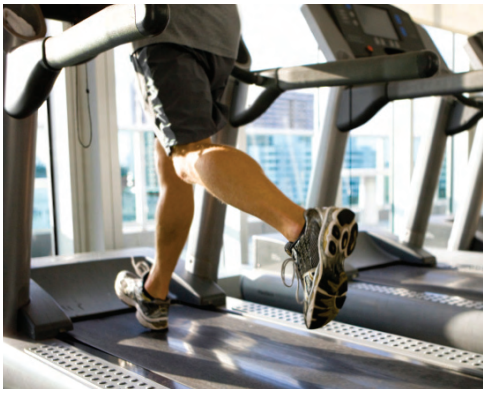
OUR STRATEGIC OBJECTIVES

What follows is an outline of our eight strategic objectives and our five-year vision.

These strategic objectives do not stand alone and are inextricably linked. They drive the fulfillment of our mission and vision. We will operate with clear operational and financial performance targets. Where data is available, Hydro One will benchmark its performance against that of comparable utilities to provide insight into new or better ways to serve our customers.







1. Creating an Injury-Free Workplace and Maintaining Public Safety

Our people underpin everything we do. As a result, their health and safety is of paramount importance to our Company. Workplace incidents, injuries and occupational disease are unacceptable and preventable. Everyone is responsible for health and safety at Hydro One.

To make this a reality, the effort and engagement of the entire Company is required. Health and safety must be integrated into all that we do. We must continue to create a passion for preventing injury. We will strengthen our already strong safety culture through our Journey to Zero initiative and achieve world-class results. We will continue to reinforce that nothing is more important than the health and safety of our employees.

Instilling core health and safety values in our new employees will provide a solid foundation for the remainder of their careers at Hydro One. Coaching and mentoring will continue to be key elements of the program, building on our learning and experiences over the last few years.

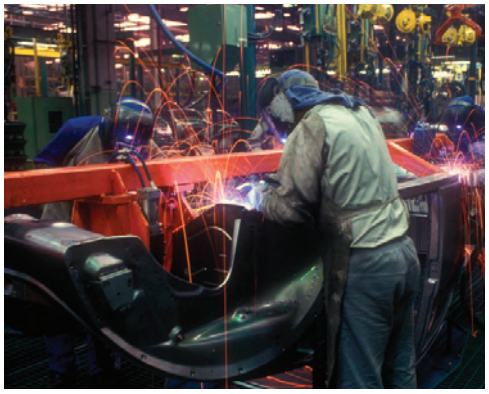
Achieving a better understanding of human behaviour will provide critical insight into injury prevention and performance improvement, especially as it pertains to decision making. Prevention programs to reduce musculoskeletal disorders and health and wellness initiatives will support our Journey to Zero.

We promote public safety and the safe use of electricity in a variety of ways. Public service announcements inform the public about possible hazards, and education programs in schools teach children how to stay safe. We provide safety knowledge to help our customers and the public use electricity safely. We work with law enforcement agencies to combat copper theft that endangers our employees and the public.

FIVE-YEAR VISION: Achieve zero injuries.

We will strengthen our already strong safety culture through our Journey to Zero initiative and achieve world-class results.







2 Satisfying Our Customers

We will continue to focus our efforts to improve our customers' satisfaction with Hydro One. Our ability to provide innovative and cost-effective solutions and to renew our transmission and distribution systems are key to this objective.

We know from our research that our customers' satisfaction reflects:

- The overall price of electricity
- The reliability and quality of power delivery
- Delivering on commitments we make
- The value we provide relative to the price of service
- Our presence in the communities we serve and our corporate citizenship
- Our effectiveness in communicating with our customer
- Hydro One's image and corporate reputation

Improvements to our customers' satisfaction will be achieved by:

- Meeting our commitments to customers
- Making our customers a focus in all planning discussions
- Communicating effectively
- Coordinating across all lines of business
- Maximizing opportunities to improve our corporate image with every customer interaction.

We will develop and deliver targeted customer segment strategies, to meet the unique needs of our diverse customer base: residential, mid-sized, distributed generators, and large customers.

Our focus on delivering conservation and demand management programs will help our customers better manage their power bills.

FIVE-YEAR VISION: On average 90 per cent Customer Satisfaction across all segments.

DEFINITIONS:

Large Customers:
Over 200 customers connected directly to the high voltage transmission system, including LDCs, energy-intensive industrials and transmission-connected power producers.

Mid-Sized Customers:
Customers with annual load over 2 MW, typically manufacturing operations working 24 hours per day, 7 days per week in the mining, automotive, wood products, food and beverage or chemicals sector, as well as distribution-connected generators.

Distributed Generators:
Both transmission and distribution connected generators.

Residential Customers:
Residential, small commercial, farm and seasonal customers.

3. Focusing on Continuous Innovation to Ensure a Modern, Flexible and Smart Electricity Grid





Innovation is critical to achieving our mission and vision and represents one of our core values.

Over the next two decades, Hydro One will install innovative solutions that improve the reliability and efficiency of the transmission and distribution systems and provide our customers more capability to manage their power costs.

Smart Grid development is a key element in Hydro One's investment in innovation. The Smart Grid represents the technological convergence of the high-and low-voltage systems. The monitoring, assessment and automated control capabilities of the transmission system will be extended to the distribution system to provide seamless and efficient oversight and operational control across all our grid assets.

Hydro One has unique experience and capability to design and build a smart distribution grid in Ontario. We have the communications and control technology in place on our transmission system and the experience built over decades of operating the high-voltage grid. We also own and operate an extensive fibre optic network, which can be leveraged to provide essential communications infrastructure to enable new smart functions and applications across our system.

Improved communications infrastructure will benefit our customers and bring Ontario to the forefront of this technological development. The first step in our smart grid strategy is to deploy smart meters and associated communications to meet the provincial government's goals, while positioning ourselves as an enabler for future enterprise-wide business efficiencies and the modernization of our distribution infrastructure. Hydro One has completed a critical milestone with the installation of over one million smart meters. This is one of the largest smart meter deployments in North America and provides an advanced platform for the next stages of innovation.

New two-way communication between the customer's electrical devices and the utility will give us the capability to collect and analyze significantly more customer usage data. This gives us the opportunity to develop and deliver innovative programs to reduce customer costs and improve service. This technology will also provide our customers with the information and technical capability they need to better manage their power use.

Hydro One will facilitate low-carbon policies that encourage investment in renewable distributed generation, such as wind, solar, hydro-electric and biofuels, by developing controls integrated into its Smart Grid that optimize the operation of generators connecting on its system, based on commercially available technology. With the GEGEA and the increase in smaller and more distributed generation, there is a need to implement Smart Grid concepts which will support continued reliable and safe operation of the distribution system. Technology and innovation will allow the same kind of visibility and control to distribution-connected generators that transmission-connected power producers now enjoy.

The Smart Grid is a long-term project. Development needs to be synchronized with evolving technology. We will lead by using pilots and targeted research to find practical ways to further leverage smart technology. We will fund micro-grid research to inform and empower customers to take advantage of demand response opportunities to conserve electricity and to proactively manage their electricity costs. We are partnering with industry players, university researchers and the Ontario Centres of Excellence to demonstrate the value of the Smart Grid in facilitating new, innovative and green energy technologies, that may include examples such as automated home energy networks and fuel cells.

Hydro One's leadership and innovation in its development of a Smart Grid will improve operation of our grid assets and deliver further value to our customers.

FIVE-YEAR VISION: Meet 100% of smart grid plan.

Building from its ground-breaking work on Smart Meters, Hydro One plans to develop a "living lab" in Owen Sound to test many of the technologies that can take advantage of the Smart Grid – including distributed generation integration, system reliability and operation, outage restoration and network planning.

4. Building and Maintaining Reliable, Cost-Effective Transmission and Distribution Systems





TRANSMISSION

Hydro One is an industry leader in developing the grid to meet emerging customer needs. Our transmission strategy is to provide a robust and reliable provincial grid that accommodates the province's emerging generation profile, manages an aging asset base and meets demand requirements through prudent expansion and effective maintenance.

We will transform the Ontario grid to enable the system to contribute to a better environment, delivering clean, renewable power to growing communities, consistent with the objectives of the GEGEA. We will sustain the overall reliability of the grid and the quality of service to our customers and work to address transmission constraints. We will replace assets that have reached their end of life and will maintain existing assets to ensure their continued performance. Technology and innovation will enable this transformation.

Our current plans identify and prioritize our development projects, including enhancements to meet load and replace end-of-life equipment.

Hydro One holds and manages both transmission and distribution facilities in a single corporate entity. This has enabled Hydro One to achieve significant synergies. Our multi-skilled workforce improves overall system reliability through the coordinated planning, operation and maintenance of the transmission and distribution facilities. We maintain a direct relationship with our customers and have a presence in the communities that Hydro One serves.

The transmission and distribution of electricity do not easily lend themselves to market competition. They are essentially public goods in that one transmission or distribution system can serve an entire geographic region

at lower cost than two or more. Due to the capital-intensive nature of transmission infrastructure and the need to ensure reliable operation and secure delivery over the transmission system, Hydro One promotes the policy of exclusive service territories for core transmission services. Hydro One will continue to advocate for a practical provincial transmission policy that formally recognizes this reality. Because the transmission business accounts for roughly two-thirds of our revenue and net income, it represents the key to maintaining our overall commercial returns. We will also promote predictable and coordinated approvals processes to facilitate the renewal of the transmission grid.

DISTRIBUTION

We will incorporate into our distribution system Smart Grid technology, leveraging technology and operational experience from our transmission system. This will provide greater visibility, increased control and improved customer service, as well as support the connection of renewable energy sources.

We will continue to meet the challenge of providing reliable service at an affordable cost over a wide-range of geography and in differing climate zones, to our end-use customers, including the municipal utilities embedded in our system, while improving the financial viability of the business.

We remain supportive of opportunities to rationalize Ontario's distribution sector. Ontario's electricity distribution sector remains fragmented, with over 70 local distribution companies. Further rationalization of the sector can provide economic and customer service benefits, as can be seen from Hydro One's earlier acquisition of 89 LDCs. Hydro One achieved operating savings averaging 30 per cent for our acquired LDCs.

FIVE-YEAR VISION: Maintain top-quartile transmission reliability and achieve top quartile distribution reliability (like for like).

We will transform the Ontario grid to enable the system to contribute to a better environment, delivering clean, renewable power to growing communities.




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5. Protecting and Sustaining the Environment for Future Generations

Consistent with our value of stewardship, Hydro One plays a central role in reducing Ontario's carbon footprint, through the delivery of clean and renewable energy and through measures that allow our customers to manage and reduce their energy use.

Climate change has moved from an issue of debate to one of action. Our stakeholders expect Hydro One to be part of the solution. In today's business climate, we must proactively manage environmental opportunities and risks. Customers look to Hydro One for advice and guidance on how to manage their energy usage in order to reduce costs and environmental impacts.

Working with communities, landowners and First Nations and Métis communities to assess and address environmental impacts helps us protect the environment and obtain timely environmental approvals for new construction that delivers clean and renewable power under the GEGEA. Identifying and pursuing opportunities for energy efficiency prepares us for emission reduction targets. We will build on our environmental management system model and work toward being an environmental leader in our industry, by minimizing the environmental impacts of our operations, and ensuring environmental factors are considered in making business decisions.

By proactively preparing for the potential impact of climate change on our operations, we are able to address those challenges as they emerge. In 2008, we launched our Greener Choices initiative aimed at instilling awareness and action within our culture. In 2009 our Green Fleet program added 193 fuel efficient vehicles, including 43 hybrid vehicles, saving 230,000 litres of fuel. In addition, nine Hydro One sites are being retrofitted, saving 549,000 kwh of electricity. Hydro One Remote Communities has adopted the use of bio-diesel at 17 generating stations. This program is expected to reduce CO_2 emissions by 1,300 tonnes (3.25%).

We will continue to focus on the facilities we own and occupy, on our fleet, and on our employees to help us reduce our costs, improve efficiencies, drive innovation and reduce our overall environmental footprint.

FIVE-YEAR VISION: Reduce our environmental footprint.

Hydro One's Green Fleet program won a Gold Rating from Canada's Energy, Environment and Excellence group.

6. Employee Engagement





We believe our primary strength is the capability of our people. In order to sustain this advantage, we must address the issues of labour demographics, diversity, development of critical core competencies, and skill and knowledge retention. Our labour strategy will enable us to make significant gains in the areas of labour flexibility, productivity improvement and cost reduction.

Across the electricity industry, and for Hydro One in particular, demographics are an issue. A significant number of employees have retired over the last five years, and a significant number, approximately 25 per cent will be eligible for retirement by 2011.

The implementation of our human resources strategy over the last five years has resulted in a significant influx of junior staff, particularly in the trades, technical, engineering and business disciplines. Well-developed programs exist for hiring qualified staff, and implementing training and development programs ensures the ongoing supply of skilled labour. As we bring new employees into the company, we will endeavor to increase representation across four target groups: women, visible minorities, aboriginals, and individuals with disabilities.

A key element of our strategy is to build on the progress made over the past two years in developing an environment that will lead to a diverse, fully engaged workforce. Hydro One has been using the Gallup Q12 employee survey to measure engagement levels and to help drive local program development to increase employee engagement. This will help retain our best employees and to reach new levels of productivity.

The workforce demographic is comprised of a large number of senior, experienced employees, and a growing number of junior, less experienced employees, with a small number of mid-career employees. The next step in the human resource strategy is to develop skills and knowledge retention and transfer programs. These programs will ensure the transfer of skills and knowledge from long-term employees to junior employees in a measured and organized manner, before the senior employees leave the Company. These programs are under development for all groups and will build on the attraction, development, and retention programs already in place. These programs will also feed the succession planning process for middle and senior management, which will be key, as high potential staff are fast tracked to fill the middle management gap.

LABOUR RELATIONS STRATEGY

Since its inception, Hydro One's labour strategy has been to consolidate and clarify its collective agreements, increase flexibility, reduce costs, and maintain a progressive relationship with our unions. This strategy has helped Hydro One achieve its goals over the last ten years. It is important these initiatives continue.

Hydro One has entered into long-term agreements with each of its key unions, ranging between three and five years in duration. The intent is to ensure labour continuity during a period of significant infrastructure replacement and growth in the Company. This continuity must be balanced with efficiencies and management flexibility.

FIVE-YEAR VISION: Achieve and maintain employee engagement at top quartile of utility comparables.

Well-developed programs exist for hiring qualified staff; implementing training and development programs ensures the ongoing supply of skilled labour.


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7. Maintaining a Commercial Culture that Increases Value for our Shareholder

We will continue to build a commercial culture that increases enterprise value for our shareholder, the Province of Ontario.

The Memorandum of Agreement between the Province and Hydro One requires Hydro One, a reporting issuer under the *Ontario Securities Act*, to operate on a financially sustainable basis and to maintain or increase the value of its assets for its shareholder.

Hydro One must balance the challenges of maintaining financial returns while meeting the other expectations of our shareholder.

We are committed to keeping rates as low as possible for our customers, and delivering income and dividends to the Province. This is possible through our focus on reducing costs, managing our assets effectively and increasing productivity.

Also key to our strategy is the importance of maintaining a strong credit rating. Hydro One uses an enterprise-wide approach for managing key business risks, including strategic, regulatory, operational and financial risks. Best practices in risk management are integrated into business processes such as operational management, business planning and investment planning to ensure a consistent consideration of risks in our decision-making processes.

The primary tenets of our financial strategy are to ensure our actions maximize the value of Hydro One, maintain an effective borrowing capability through stable credit quality, consistent earnings, and meet our shareholder's expectations for financial results.

FIVE-YEAR VISION: Achieve the ROE allowed by the Ontario Energy Board and maintain "A" credit rating category.

We are committed to keeping rates as low as possible for our customers, and delivering income and dividends to the Province.


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8. Achieving Productivity Improvements and Cost-Effectiveness

To achieve our mission and vision, we must constantly strive for productivity through efficiency and effective management of costs. Productivity is key to meeting our other strategic objectives and in particular, to achieving value for our customers and our shareholder.

Our Memorandum of Agreement with the Province requires Hydro One to target performance in the top quartile of private and publicly-owned utilities for operating and financial results and for major project execution. We will meet escalating cost pressures without sacrificing the quality of service we deliver, while improving the returns we provide to our owner.

We will pursue continuous productivity improvement and cost savings, building on our strong track record. Our target is to move to the top quartile in key unit cost metrics relative to our North American electricity industry peer group.

In order to keep costs down, Hydro One purchases many non-core services, rather than delivering them internally. This has been achieved through strategic procurement and through the competitive tendering of a wide range of products and services, including the delivery of many large construction projects. The use of a hiring hall structure has also allowed Hydro One to match staff numbers to workload. For those activities that cannot be procured without compromising service or reliability, the focus has been on achieving internal efficiency gains.

A history of rate reductions, freezes and caps has put pressure on the level of investment in our core assets, especially in the distribution system. Cost pressures continue to come from the external environment, including increased global demand for materials, changes to regulations and a shortage of skilled workers. All of these pressures will be mitigated as much as possible, but are expected to continue into the future.

FIVE-YEAR VISION: Achieve top-quartile unit costs in transmission and distribution against utility comparables.

Productivity is key to meeting our strategic objectives and in particular, to achieving value for our customers and our shareholder.



CONCLUSION

This Strategic Plan spells out how Hydro One will continue to strive to achieve its Mission and Vision while being true to its corporate values of Health and Safety, Stewardship, Excellence, and Innovation.

The strategic objectives identified in this document will underpin and drive the Company's planning, risk management, and investment decision processes going forward to ensure the company remains focused on achieving its Mission and Vision. The objectives are also a integral part of the balanced corporate scorecard, providing critical feedback and guidance to help ensure we remain on target.

Hydro One recognizes the pivotal role that innovation will play in building a smart electricity grid that supports high quality jobs and a clean environment for Ontario. We are committed to becoming the industry leader in putting innovative solutions to work for the well-being of the Ontario economy and all its citizens.

APPENDIX 1

MEMORANDUM OF AGREEMENT

BETWEEN

Her Majesty the Queen
in Right of the province of Ontario
as Represented by the Minister of Energy

AND

Hydro One Inc. ("HOI")

A. ***Purpose:***

This document sets out the agreement between Hydro One Inc. ("HOI"), a corporation incorporated under the *Business Corporations Act* (Ontario) (the "OBCA") and subject to/governed by the *Electricity Act, 1998* (the "EA") and its sole shareholder, Her Majesty the Queen in Right of the Province of Ontario as represented by the Minister of Energy (the "Shareholder") on mandate, governance, responsibilities, performance expectations and executive compensation.

This Memorandum of Agreement is intended to promote a positive and co-operative working relationship between HOI and the Shareholder.

B. ***Mandate:***

1. HOI's core mandate is the safe, reliable and cost-effective transmission and distribution of electricity to Ontario electricity users.

2. HOI will operate as a commercial enterprise with an independent Board of Directors that will, at all times, exercise its fiduciary responsibility and a duty of care to act in the best interests of HOI.

C. ***Governance:***

The governance relationship between HOI and the Shareholder shall be founded on the following principles:

1. The Board of Directors of HOI is responsible for oversight of the management of the business and affairs of the Corporation, including the appointment of executive officers and management and the formation and operation of key committees essential to its governance structure.
2. HOI will maintain a high level of accountability and transparency as follows:
   (i) As an OBCA company, HOI is subject to all of the governance requirements associated with the OBCA, and as a reporting issuer of debt securities is subject to the governance requirements under the *Securities Act (Ontario)* and any other applicable securities regulatory requirements.
   (ii) HOI is also subject to the *Freedom of Information and Protection of Privacy Act* (Ontario), the *Public Sector Salary Disclosure Act* (Ontario) and the *Auditor General Act* (Ontario).
   (iii) As a transmitter and distributor of electricity, and as a generator for the purposes of distributing electricity to remote areas through its wholly-owned subsidiary Hydro One Remote Communities Inc., HOI is licensed by and subject to the jurisdiction of the Ontario Energy Board (the OEB) pursuant to the *Ontario Energy Board Act, 1998*, including all of the OEB's orders, codes and other regulatory requirements as are applicable.

3. The Shareholder may at times direct HOI to undertake special initiatives. Such directives will be communicated as written declarations by way of an Unanimous Shareholder Agreement or Declaration in accordance with Section 108 of the OBCA. Hydro One will disclose this direction as required under securities legislation.

D. ***Responsibilities – Operational:***

1. HOI will operate its transmission and distribution assets as efficiently and cost-effectively as possible, within the legislative and regulatory framework of the Province of Ontario. The company will operate these assets in a manner that appropriately mitigates the Shareholder's financial and operational risk.
2. HOI will continue to operate in full compliance within the legislative and regulatory framework and using best practices with respect to employee and public safety.
3. HOI will prioritize investments in transmission and distribution capacity to support projects necessary to maintain ongoing grid security and reliability.
4. HOI will operate in Ontario in accordance with the highest corporate standards, including but not limited to the areas of corporate governance, social responsibility, environmental stewardship and corporate citizenship.

E. ***Responsibilities – Financial:***

1. HOI will annually prepare a three to five year investment plan for new projects. Once approved by HOI's Board of Directors, the plan will be submitted to the Minister of Energy and the Minister of Finance for concurrence.
2. As an OBCA corporation and reporting issuer with a commercial mandate, HOI will operate on a financially sustainable basis and maintain or increase the value of its assets for its Shareholder.
3. HOI will obtain the approval of the Minister of Energy and Minister of Finance, in advance, with respect to:
    (i) any proposal to issue or transfer shares in the Corporation or any of its subsidiaries;
    (ii) any proposed acquisition or divestment of assets, other major transaction, proposal or action by the Corporation or any of its subsidiaries, where such acquisition or divestment, major transaction, proposal or action would potentially have a material impact on:
        - the cash flow to the Ontario Electricity Financial Corporation
        - the financial Interests of the Province; or
        - the payments in lieu of taxes by the Corporation and its subsidiaries under the EA.

F. ***Responsibilities – Communications & Reporting:***

1. The HOI Board of Directors and the Minister of Energy will meet, as needed, to enhance mutual understanding of interrelated strategic matters.
2. HOI's Chair, President and Chief Executive Officer and the Minister of Energy will meet on a regular basis.
3. HOI's Chair, President and Chief Executive Officer and the Minister of Finance will meet at the Minister's request.
4. HOI's senior management and senior officials of the Ministry of Energy and the Ministry of Finance will meet and communicate on a regular and as needed basis to discuss ongoing issues and clarify expectations or to identify and address emergent issues, including but not limited to issues that may have a material impact on the financial performance of HOI or the Shareholder. Such communication and reporting from HOI should be on an immediate or, at minimum, an expedited basis where an urgent material human safety or system reliability matter arises.

5. HOI will provide the Minister of Energy and senior officials of the Ministries of Energy and Finance its multi-year and annual business planning information, and advise on developments and issues that may materially impact the business and financial performance of HOI, and/or the financial performance and interest of the Shareholder, on a timely basis.
6. HOI will provide the Minister of Energy and senior officials of the Ministries of Energy and Finance quarterly and monthly financial reports and briefings on operational and financial performance against plan.
7. In all other respects, HOI will communicate with government ministries and agencies in a manner typical for an Ontario corporation of its size and scope.

G. ***Performance Expectations:***

1. HOI will seek continuous improvement in the operational performance of its transmission and distribution assets and internal operations.
2. HOI will annually establish three to five year performance targets for operating and financial results as well as major project execution. Key measures are to be agreed upon with the Minister of Energy and the Minister of Finance. HOI will benchmark its performance on these measures against the performance of other utilities, including international utilities where information is available. On these measures, Hydro One will target performance to be in the top quartile of private and publicly-owned utilities in North America.
3. Once approved by HOI's Board of Directors, HOI's annual performance targets will be submitted to the Minister of Energy and the Minister of Finance for concurrence.
4. HOI will provide annual reports on its performance compared to targets to senior officials of the Ministry of Energy and Ministry of Finance.

H. ***Executive Compensation:***

1. HOI will have regard to the recommendations of the Agency Review Panel regarding Executive and Senior Management Compensation in setting executive compensation policies, procedures and practices, including internal governance practices and procedures.

I. ***Review of this Agreement:***

This agreement will be reviewed and updated as required.
This Memorandum of Agreement shall be effective as of the date hereof:

Dated the 27 day of March, 2008

On behalf of HOI:

Original Signed by:

R. Burak

Rita Burak
Chair,
Hydro One Inc. Board of Directors

On behalf of the Shareholder:

Original Signed by:

Gerry Phillips

Her Majesty the Queen in Right of the Province of Ontario as represented by the Minister of Energy, Gerry Phillips

HAUDENOSAUNEE – HYDRO ONE AGREEMENT

This Agreement is made on September 24, 2007.

Between:

The Haudenosaunee, also known as the Six Nations Iroquois Confederacy ("the Haudenosaunee")

-and-

Hydro One Networks, Inc. ("Hydro One")

(Together, "the Parties")

The Parties agree as follows:

1.0 Principles

1.1 In their approach to this agreement, the Haudenosaunee are governed by the following principles:

1.1.1 We must treat the Earth with kindness and respect, because walking upon her is like walking upon the face of our own mother. We should also walk gently upon the Earth, for we are treading upon the faces of our own unborn generations.

1.1.2 Haudenosaunee lawmakers are obliged, by the terms of the Kayaneren:kowa, the Great Law of Peace, to consider the impact of any decision on the coming generations.

1.1.3 Everything should be in balance. Every authority is balanced by responsibility. This extends to the use of land: the authority to use land or resources includes the responsibility to protect them.

1.1.4 Haudenosaunee law acknowledges the land and living things, not as resources or assets intended for the use and enjoyment of humans, but as vital parts of a larger circle of life, each entitled to respect and protection. In Haudenosaunee thinking, it is not possible to separate "land" from the rest of the circle of life—the waters, grasses, medicine plants, food plants, berries and trees; the insects, animals, birds and people; the winds and other unseen forces that benefit the world. Our relationship with all these is one of gratitude and humility. We acknowledge that each part of the natural world seeks to fulfill its responsibility, as we humans do.

1.1.5 We acknowledge the rights and presence of the ancestors, the people who lived with and on this land for thousands of years. We understand that our obligation, as the indigenous people of this land today, is to respect the legacy of the ancestors; to protect

their remains from disturbance; and to avoid engaging in, or permitting any activities that would disturb or disrespect the ancestors.

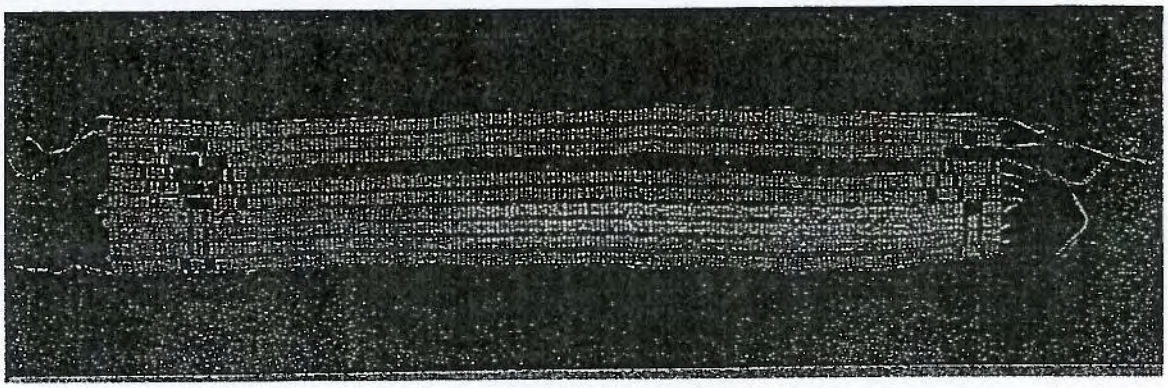
1.1.6 Hydro One considers the following principles important in carrying out and understanding this Agreement:

1.1.7 Hydro One fulfills important public duties in the transmission and delivery of electrical power for the people of the Province of Ontario.

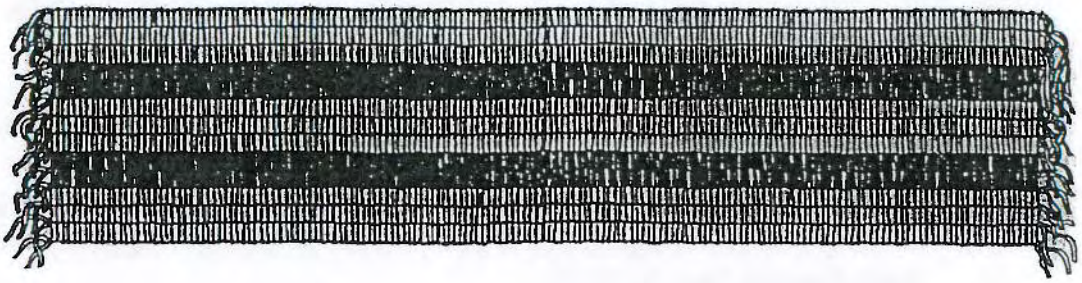
1.1.8 Hydro One has long and short term plans to improve and develop its transmission system within the Territory for the purpose of improving service performance and safety for its customers.

2.0 The Treaty Relationship

2.1 The Haudenosaunee and the Crown have a treaty relationship that has lasted several centuries. The central symbol of that relationship, the Silver Covenant Chain, signifies mutual respect, sharing and help.



2.2 The Two Row Wampum, Tekini Tiiohate Kahswentha, is another symbol of the Treaty relations between the Crown and the Haudenosaunee. The wampum belt bears two parallel dark rows, symbolizing the Crown's sailing ship and the Haudenosaunee canoe. The two watercraft are to navigate the River of Life together, side by side. The two lines do not cross or meet: this symbolizes that the two systems of government are to remain separate, and neither is to seek to control the other. There are three rows of pure white wampum between the dark rows. These symbolize respect, trust and friendship—the principles that keep the two watercraft close together, as well as at a respectful distance.



2.3 The principles set out in Paragraphs 2.1 and 2.2 guide the Parties in making this Agreement and any subsequent agreements.

2.4 This Agreement is made in the context of the existing Treaty relationship between the Haudenosaunee and the Crown. It shall not in any way derogate from that relationship, or from any rights of the Haudenosaunee or the Crown pursuant to any Treaty.

3.0 The Territory

3.1 The Parties recognize that the Territory and its environment should to the extent possible be protected for future generations, and they are committed to working together to that end.

3.2 The Territory, for the purposes of this Agreement, is that area of land now known as southwestern Ontario, and can be described as the lands and waters of the peninsula between Lakes Ontario, Erie and Huron, west of a line drawn from the mouth of the Severn River to the mouth of the Humber River.

4.0 The Project

4.1 Hydro One has proposed to build, operate and maintain a-transmission line from the Bruce Peninsula to the Town of Milton. The Project traverses the Territory. The Project involves the construction of approximately 180 kilometres of double-circuit 500 Kilovolt electricity transmission line adjacent to the existing transmission corridor extending from the Bruce Power facility in Kincardine Township to Hydro One's Milton Switching Station in the Town of Milton.

5.0 The Nature of this Agreement

5.1 The Haudenosaunee and Hydro One share a desire to come to one mind about the issues addressed by this Agreement, and to avoid any present or future conflict concerning those issues.

5.2 This Agreement is an expression of co-operation, respect and good faith. It is intended to govern the conduct of the Parties in their work together.

5.3 We are human beings in an increasingly complex and crowded world. We cannot foresee everything, or think of every eventuality. In this Agreement, we are certain to make mistakes. Where this Agreement fails to meet our needs or goals, we are committed to working together to provide remedies. We recognize our limitations. We have done the best we could.

5.4 This Agreement is between the Haudenosaunee and Hydro One and shall not affect the rights of any other government or indigenous nation.

5.5 The Parties shall work toward agreement on the matters set out in this Agreement, and to that end shall seek to negotiate agreements on those matters.

5.6 The Parties intend that the principles of this agreement shall apply to future agreements between them. They also share a desire to have their agreements cover other transmission line projects in the Territory. The Niagara Reinforcement Project is a matter of importance to the Parties, which they agree to discuss further.

6.0 Definitions

6.1 The following definitions shall apply to this Agreement:

(a) "**Agreement**" means this Agreement and all its schedules and amendments;
(b) "**Approval**" means approvals, authorizations, permits, licenses and any other similar rights to be issued or granted by any Governmental Authority pursuant to any applicable law (including, without limitation, any statute, subordinate legislation, treaty, guideline, directive, rule, standard, requirement or policy having the force of law) in respect of the Project;
(c) "**Committee**" means the committee established pursuant to Part 8;
(d) "**Governmental Authority**" means any legislative, executive, judicial or administrative body having or purporting to have jurisdiction in the relevant circumstances, and includes the OEB;
(e) "**OEB**" means the Ontario Energy Board;
(f) "**Potential Adverse Effects**" means potential adverse effects of the Project;
(g) "**Project**" means the Project as described in Paragraph 4.1.
(h) "**Regulatory Processes**" means any review processes in respect of the Project conducted by a Governmental Authority as a condition to the issuance of any Approval in respect of the Project, its construction or operation, and includes any environmental assessments or screening.
(i) "**Territory**" means the Territory as described in Paragraph 3.2.

7.0 Purposes of this Agreement

7.1 The purposes of this Agreement are to assist the Parties to work together to address their interests and concerns in respect of the Project; to share information; to address their respective involvement in Regulatory Processes; to seek to resolve mutual concerns over Potential Adverse Effects of the Project, and to provide processes that will promote or implement the mitigation of such effects.

7.2 The Parties intend to negotiate and enter into agreements with respect to the following matters and within the following timeframes:

(a) the conduct of archaeology during the construction of the Project, and the protection of human burials encountered in the course of construction; by *August 15, 2007;*

(b) the protection of the natural environment and of ecosystems during the construction, operation and maintenance of the Project, and ways in which the Potential Adverse Impacts on the environment and ecosystems can be minimized, and the promotion of the protection and recovery of ecosystems and endangered species; by *August 30, 2007;*

(c) addressing and appropriately accommodating Haudenosaunee treaty and aboriginal rights affected by the Project; by *September 1, 2007*; and

(d) identifying potential employment, training, contracting or business opportunities for the Haudenosaunee in respect of the Project; by *September 30, 2007.*

7.3 As a principle, Parties agree that the implementation and monitoring of their performance shall be provided for in their agreements.

7.4 As the agreements described in Paragraph 7.2 are negotiated, they shall be signed by the negotiators to indicate agreement in principle, and shall come into effect and be binding when they are ratified by both Parties.

8.0 The Committee

8.1 The Haudenosaunee and Hydro One will establish the Committee, composed of three representatives of each Party.

8.2 The Committee's responsibilities will include:

(a) the implementation of this Agreement, and ensuring that such implementation is carried out in a manner consistent with the Purposes;

(b) negotiating the agreements contemplated by Part 7 of this Agreement;

(c) meeting regularly to carry out the terms of this Agreement;

(d) coordination of information sharing between the Parties;

(e) discussion of ways to address and mitigate Potential Adverse Effects; and

(f) identifying and addressing issues of concern to either Party in respect of the Project.

9.0 Information Sharing

9.1 The Parties, subject to the other provisions of this Part and any agreements concerning the protection of confidential information, will, through the Committee, share all relevant information in a timely manner concerning the Project, such information including technical, environmental, archaeological and Regulatory Process information.

9.2 Confidential information provided by one Party to the other will be held in strict confidence and will not be released to third parties without the express written consent of the Party providing the information.

9.3 The restriction with respect to confidential information does not apply to any information provided by either Party where that information is required to be disclosed to a Governmental Authority or as part of a Regulatory Process or to information that is now, or later becomes available, in the public domain.

10.0 Regulatory Issues

10.1 The Haudenosaunee have a treaty relationship with the Crown. The Haudenosaunee intend that their participation in Regulatory Processes conducted by the Government of Canada or the Government of Ontario will be governed by, and conducted within the context of, that relationship.

10.2 Notwithstanding anything in this Agreement, the Parties retain the right to participate in or intervene in Regulatory Processes as they may choose.

10.3 Nothing in this Agreement shall be interpreted in any Regulatory Process or otherwise as indicating Haudenosaunee support for the Project.

11.0 Funding

11.1 The Parties recognize that Haudenosaunee resources, human and otherwise, will be applied to the discussions and reviews contemplated by this Agreement, as a result of Hydro One's application to construct, operate and maintain the Project. The Parties agree that it is therefore appropriate for Hydro One to contribute toward the cost of that work, as well as toward Haudenosaunee participation in any Regulatory Processes in respect of the Project, as set out in Schedule A to this Agreement.

12.0 Resolution of Issues Between the Parties

12.1.1 The spirit of mutual respect governs this Agreement. The Parties are committed to ensuring that its spirit and intent are fulfilled over time.

12.2 If either the Haudenosaunee or Hydro One has a concern about the fulfillment of any part of this Agreement, the Parties shall first seek to resolve the matter directly and respectfully between themselves, in accordance with the spirit of this Agreement.

12.3 If the steps taken pursuant to Paragraph 12.2 do not resolve the matter, either Party may state the issue in writing and deliver it to the other Party.

12.4 Within one week of receiving the written notice pursuant to Paragraph 12.3, the Committee shall meet with other representatives of the Parties to help to resolve the issue. The Committee may, in its discretion, invite a mediator or other persons to assist in the resolution of the issue.

12.5 If the process described in Paragraph 12.4 does not resolve the issue, either Party may, by notice in writing to the other Party, request formal mediation. The Committee shall forthwith appoint a mediator and shall, together with the mediator, set rules for the mediation.

12.6 The Parties desire to avoid having any matter between them dealt with by the courts. In any agreement subsequent to this Agreement, if mediation is unsuccessful, they may seek to resolve the matter by arbitration, as specifically provided in that subsequent agreement.

13.0 Notice

13.1 Written notice pursuant to this Agreement may be delivered by registered mail or facsimile to the Parties at the following addresses:

To the Haudenosaunee at:

Box 98
Grand River Territory
Ohsweken ON N0A 1M0
Facsimile:
Attn: ●

To Hydro One at:

483 Bay Street
Toronto, ON M5G 2P5

Facsimile:
Attn: ●

14.0 Ratification and Amendment

14.1 This Agreement may be amended or modified in the same manner as it was made.

14.2 This Agreement may be terminated by either Party upon giving the other Party at least sixty days written notice of such termination.

14.3 This Agreement shall come into effect when it is executed by both Parties.

HAUDENOSAUNEE

By: _____
● Authorized Signatory

By: _____
● Authorized Signatory

By: _____
● Authorized Signatory

HYDRO ONE NETWORKS, INC.

By: _____
Yury Tsimberg
~~Team Leader~~

By: _____
Rob Thomson
Real Estate

By: _____
Emilija Stupar
Project Coordinator

Schedule A

Each phase is likely to involve (based on previous experience) three full days of negotiations; with one day of preparation before the meeting and one day of follow-up after each session. As well, it is likely that preparation will also include five days' research by a single team member or by staff on contract or in support. The total time required for each phase would be twenty-three "man-days".

The cost of the negotiators' participation in the process would therefore be [redacted] with the Niagara Reinforcement Project adding another [redacted]

The total expected time for the process is three months. Support staff and research costs during that time would reasonably be about [redacted] per week, for a total of [redacted]

The Haudenosaunee expect to be able to call upon the advice of skilled consultants with respect to specific issues. [redacted] for each of the five phases seems reasonable, considering the work that has already been done in past negotiations – for a total of [redacted]

The Haudenosaunee have hosted the negotiations to date. They have had no travel expenses. There have been other expenses, though: telephone, photocopying, Internet and other general expenses involved in supporting and conducting negotiations. [redacted] per week during the three-month negotiating period would cover these expenses – totaling [redacted]

Budget for Haudenosaunee – Hydro negotiations:

Negotiators:	Bruce to Milton	[redacted]
	Niagara Reinforcement	
Support staff:		[redacted]
Consultants:		[redacted]
Expenses:		[redacted]
Total:		[redacted]

AGREEMENT – BURIALS AND ARCHAEOLOGY

This Agreement is made as of April 24, 2008.

Between:

The Haudenosaunee, also known as the Six Nations Iroquois Confederacy (the "Haudenosaunee")

-and-

Hydro One Networks, Inc. ("Hydro One")

(Together, the "Parties")

The Parties agree as follows:

1. The following principles guide this Agreement:

Hydro One has applied to construct, operate and maintain the Bruce to Milton Reinforcement Project (the "Project") through part of the Territory.

The Territory has been the home of human beings, including ancestors of the Haudenosaunee, for thousands of years.

The Haudenosaunee and Hydro One agree that human burials must receive proper respect and protection.

The Haudenosaunee and Hydro One agree that archaeological work in connection with the Project should be carried out carefully, professionally, and with due respect for any human burials that may be found, and for the culture of the people who occupied this land before us.

The Haudenosaunee and Hydro One have entered into a Protocol, dated September 24, 2007 (the "Protocol") to guide their negotiations and relations concerning the Project. The Protocol addresses process and context. Some of its terms are repeated in this Agreement, to clarify that they apply to the subject matter of this Agreement. The terms and spirit of the Protocol guide and inform the conduct of the Haudenosaunee and Hydro One in this Agreement.

2. The following definitions apply to this Agreement,

"**Burial**" includes human remains and funerary objects, and includes unintentional and intentional burials, and burials of part of a human being as well as of entire bodies found within the Territory.

"**Funerary Objects**" means objects that have been buried with a person.

"**Project**" means the Bruce to Milton reinforcement transmission line that Hydro One has proposed to build, operate and maintain from the Bruce Peninsula to the Town of Milton, Ontario. The Project involves the construction of approximately 180 kilometres of double-circuit 500 Kilovolt electricity transmission line adjacent to the existing transmission corridor extending from the Bruce Power facility in Kincardine Township to Hydro One's Milton Switching Station in the Town of Milton.

"**Registrar**" means the Registrar of the Cemeteries Branch of the Ontario Ministry of Government Services.

"**Respected**", in the context of a Burial, means that once a Burial is located, the Burial will be disturbed by the Parties only to the extent required to fulfill the intentions and purposes of this Agreement, and once it has been dealt with pursuant to this Agreement, it should not be subjected to further disturbance.

"**Territory**" means "**Territory**" as defined in Paragraph 3 of the Protocol.

The definitions of capitalized terms in the Protocol apply to this Agreement.

3. In the Haudenosaunee view, protecting Burials is a matter of rights and obligations: the obligations are to the ancestors and in accordance with Haudenosaunee law and custom; the rights are matters of law and also exist in the context of Haudenosaunee Treaty relations with the Crown. The ancestors are considered to be an integral part of the people, and they are acknowledged and provided for in the annual cycle of ceremonies. In Haudenosaunee law, it is fundamentally wrong to interfere with Burials.

4. In order to protect, avoid and respect Burials that might be affected by the construction of the Project, the Parties agree that there should be prior investigation by professional archaeologists to determine the potential extent and location of Burials. This Agreement governs the conduct of that archaeological work.

5. The Parties acknowledge that the purpose of the archaeological investigation contemplated by paragraph 4 is not only to determine the existence and location of Burials, but also to seek to identify and record previous human occupation and use of the area of the Project. The Parties acknowledge the usefulness of that information.

6. The Parties intend that archaeological investigations contemplated by paragraph 4 will be completed far enough in advance of any construction related to the Project that construction plans will be adjusted to Respect the integrity and dignity of any Burials, as may be agreed upon by the Parties.

7. Hydro One has a number of archaeological firms on retainer for work in Ontario. The Haudenosaunee and Hydro One have listed the firms retained by Hydro One that may be assigned work on the Project by Hydro One, and Hydro One agrees not to assign work to any firm that is not on the list. The list may be amended by the Parties.

8. Hydro One is bound by the Ontario *Cemeteries Act*. In acknowledgment of this, the Parties will seek to ensure that their conduct and processes pursuant to this Agreement meet or exceed the standards and requirements of that statute.

9. All archaeological work in connection with the Project will seek to meet or exceed standards set pursuant to the Ontario *Heritage Act* and its Regulations, and those set in Ontario Ministry of Culture guidelines and permits concerning archaeological methodology and analysis. The archaeological work will also be conducted in a way that seeks to Respect Haudenosaunee law and customs and Hydro One's corporate policies. The Haudenosaunee will meet with archaeologists conducting work in the right-of-way of the Project to communicate to them the standards and methodology required by Haudenosaunee law and customs. Haudenosaunee requirements will not place the archaeologists in conflict with provincial law and will not interfere with their ability to fulfill their contracts.

10. Parts of the Project's right of way are not owned by Hydro One but are occupied by Hydro One under easements or rights of way. The Parties agree to work with the registered owners of the land to seek to achieve the objectives of this Agreement, recognizing that it may not always be possible to secure the co-operation of the registered owners of the land.

11. The majority of the construction work for the Project and, therefore, the majority of the archaeological work, involves placing transmission towers on relatively small "footprints". For the purpose of this Agreement, the "footprint" of each tower within the Territory shall be considered to be a separate "Site".

12. Each contract made by Hydro One for archaeological work in the Project's right of way shall require that a person designated by the Haudenosaunee be hired as part of the archaeological team. This person shall have the same authority as the archaeologist in charge to stop work on a Site if a Burial is found. Where a contract involves simultaneous work at several separate Sites, enough workers shall be hired to ensure consistent monitoring of the archaeological work. The Haudenosaunee person or persons, as appropriate, referred to in this paragraph will be paid on the same basis as other such workers on the archaeological team directly by Hydro One or through the archaeological firm in charge.

13. In addition to the workers referred to in Paragraph 12, the Haudenosaunee may designate persons who will carry out visual, cultural and built heritage assessments at archeological sites related to the Project within the Territory during the time that work on that site is being conducted. The Parties will work together to ensure consistency with the terms of Hydro One's early access orders to the land.

14. Hydro One will pay the fees and expenses of archaeologists contracted by the Haudenosaunee for investigations pursuant to Paragraph 16, at the same rates as it pays the fees and expenses of Hydro One's contracted archaeologists for similar work. If more than five days work by the archaeologists is required, the Parties will seek to agree on how the costs will be covered.

15. When a Burial is found, even though Hydro One will no longer wish to place a tower on that Site, provision must still be made for the protection or disposition of the Burial. Hydro One, having discovered the Burial during preparations for its Project, acknowledges a responsibility to help with the negotiation costs incurred by the Haudenosaunee. Hydro One will pay those costs, whether the negotiations concerning a Burial are with Hydro One or with a private landowner, at the same rate as it has paid for the negotiations concerning the Project, to a maximum of five days of such costs. If the costs exceed that amount, the Parties shall seek to agree on a fair contribution by Hydro One to the remaining costs.

16. Where an isolated human bone or tooth is found, the Parties will discuss, in a timely manner, whether the find is a Burial, and whether it will be dealt with pursuant to this Agreement.

17. If a Burial is found during archaeological or construction work in connection with the Project on land owned by Hydro One or on Crown land under Hydro One control:

a) all archaeological or construction work on that site will stop immediately;

b) the person in charge of the archaeological or construction work, as the case may be, shall immediately provide notice both by telephone and by facsimile to the Haudenosaunee. The notice will include the location of the burial and any information available to the person giving notice at the time.

c) the person in charge of the work shall immediately notify the police or the coroner, as Ontario law requires.

d) the person in charge of the work shall immediately notify the Registrar.

e) Whether the Registrar orders it or not, and if the coroner or police have determined that a Burial is not the result of a recent crime, Hydro One, in consultation with the Haudenosaunee, shall cause an investigation to be made of the origin of the burial. The investigation shall be carried out by the archaeologist contracted by Hydro One to investigate that site. In conducting the investigation, the archaeologist shall not exceed any authority provided by Ontario law.

f) If the Haudenosaunee request it, the investigation be carried out jointly by an archaeologist contracted by Hydro One and one contracted by the Haudenosaunee.

g) The investigator or investigators shall, as soon as practicable, provide a written report containing the following information:

   i) a determination of the possible cultural origin and religious affiliation of the persons whose remains are interred and the basis upon which the determination is made;

ii) a description of the boundaries of the burial site, and of any village or communal site with which the burials may be associated;

iii) details of the style and manner in which the human remains are interred;

iv) a description of any artifacts that, in the opinion of the investigator, form part of the burial;

v) an opinion as to whether the burial site was set apart with the apparent intention of interring human remains in accordance with cultural affinities and the basis on which the opinion is made;

vi) an opinion as to whether there are likely to be other burials in the immediate vicinity;

vii) a description of the methodology used in the investigation; and

viii) any information which, in the opinion of the investigators, may assist in arriving at an agreement concerning the future protection of the remains.

h) The information required pursuant to subparagraph 17.g)i) will be provided within five days after the investigation has begun.

i) Reports of investigations made pursuant to paragraph 17.g) shall be delivered to Hydro One and the Haudenosaunee at the same time.

j) If the investigation conducted pursuant to paragraph 17.g) concludes that the remains were not human remains, work stopped shall resume once the report has been received.

k) An investigation conducted pursuant to paragraph 17.g) shall be conducted with a minimum of interference with the burial. Human remains and funerary artifacts shall not be removed from the site during the investigation. The remains and funerary artifacts shall not be photographed without Haudenosaunee consent.

l) The Parties will as soon as possible make every reasonable effort to arrive at an agreement providing for the protection of the burial. These efforts will include, with respect to construction, finding practical design or construction solutions aimed at ensuring the burial site is respected. If a burial is found in the right-of-way of the Project, the Haudenosaunee, or any aboriginal people they notify in accordance with paragraph 20, will have the opportunity immediately to perform ceremonies at the site in accordance with their laws and customs.

m) Hydro One may register an agreement between the Hydro One and the Haudenosaunee concerning the protection of any burial site as a "Site Disposition Agreement" pursuant to the Ontario *Cemeteries Act*.

n) Many human cultures place objects with their dead, to accompany them to the next world. As a matter of respect for the dead and for the people who buried them, artifacts found with burials shall be treated as funerary objects and shall remain with the burial unless the Haudenosaunee consent otherwise in writing.

18. If a Burial is found during archaeological or construction work in connection with the Project on land other than land owned by Hydro One or Crown land under Hydro One control:

    a) all archaeological or construction work on that site will stop immediately;

    b) the person in charge of the archaeological or construction work, as the case may be, shall immediately provide notice both by telephone and by facsimile to the Haudenosaunee. The notice will include the location of the Burial and any information available to the person giving notice at the time.

    c) the person in charge of the work shall immediately notify the police or the coroner, as Ontario law requires.

    d) the person in charge of the work shall immediately notify the Registrar.

19. Where a Burial is found in a place intended to be the footprint of a tower, Hydro One will avoid placing the tower where the Burial is located, and will move the tower location so that it is at least ten metres from the edge of the nearest Burial.

20. Where an indigenous Burial in the Project's right of way is not clearly that of an ancestor of the Haudenosaunee, the Haudenosaunee accept responsibility for ensuring that representatives of other indigenous nations are appropriately involved in discussions and decisions with respect to that Burial. While the Haudenosaunee accept this responsibility, Hydro One may, without violating the spirit of this agreement, notify any other indigenous groups or nations of any matter covered herein.

21. The Haudenosaunee will advise Hydro One of the kinds of objects that, if discovered in the right-of-way of the Project, require under Haudenosaunee custom that they be treated ceremonially. Hydro One and its contractors will honour and respect such advice.

22. All artifacts recovered in the Project's right of way as a result of archaeological or construction work and which are identified as Haudenosaunee, or associated with peoples linked to the Haudenosaunee, and are not funerary objects shall be delivered to the Haudenosaunee as soon as practically possible, subject to Haudenosaunee customs and good archaeological practice, and subject to Hydro One's and the archaeologists' compliance with the requirements of Ontario laws, and unless the Haudenosaunee and the archaeologists involved agree otherwise.

23. The Haudenosaunee will have reasonable access to all artifacts found in connection with the Project, until the final disposition of the artifacts is agreed upon.

24. The Parties and the archaeologists hired by Hydro One will discuss ways in which the results of archaeological work referred to in this Agreement may be used to help produce educational facilities or materials that will enhance understanding of the past.

25. Hydro One will provide the Haudenosaunee with access to all information relating to archaeological activities in connection with the Project.

26. We are human beings in an increasingly complex and crowded world. We cannot foresee everything, or think of every eventuality. In this Agreement, we are certain to make mistakes. Where this Agreement fails to meet our needs or goals, we are committed to working together to provide remedies. We recognize our limitations. We have done the best we could.

27. This Agreement is between the Haudenosaunee and Hydro One and shall not affect the rights of any other government or indigenous nation.

28. The provisions of this Agreement shall govern the conduct of any archaeological work remaining to be conducted by or on behalf of Hydro One in connection with the Niagara Reinforcement Project.

29. If either the Haudenosaunee or Hydro One has a concern about the fulfillment of any part of this Agreement, that concern shall be addressed in the same manner as the resolution of issues is provided for in the Protocol.

30. Neither the Haudenosaunee nor Hydro One will seek to have any issue relating to Burials resolved by way of arbitration pursuant to the Ontario Cemeteries Act.

31. Notice pursuant to this Agreement shall be provided in the same manner as provided in the Protocol.

32. This Agreement may be amended upon written agreement of the Parties.

33. This Agreement may be terminated by either Party upon 60 days written notice to the other Party.

HAUDENOSAUNEE

Arnold Jacobs

Brian Doolittle

Paul Williams

HYDRO ONE NETWORKS INC.

Yury Tsimberg

Rob Thomson

Emilija Stupar Giovinazzo

Brian McCormick

CORNERSTONE PHASE 1

PROJECT CLOSURE REPORT



Submitted by: Verne Webber

October 2008

Recommended by: Dave Stevenson

Recommended by: Ian Malpass

Approved by: Carmine Marcello

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Cornerstone Program Overview

In order to achieve the **Cornerstone Strategy**, a program was put into place with two main thrusts. One thrust is a four phase staged plan to replace core, enterprise, "end-of-life" Information Technology systems with one, or at most two, modern, "out-of-the-box" solutions. The other thrust is a transformation of the corporate culture through Corporate leadership, and supported by the Enablement organization to ensure adherence to new, "Industry Standard Practices / Processes" to continually capture the planned efficiencies.

The Enablement organization is the corporate owner for the Cornerstone applications and is accountable for process and data management, value realization, performance improvement, training and technical solutions related to the systems and processes implemented by the various phases of the Cornerstone program. The overall aim is to ensure that Cornerstone assets are leveraged to their full potential.

The four phase plan began with the Enterprise Asset Management (EAM) Core Functionality replacement (Completed June 2, 2008). Next comes Finance/HR/Pay Functionality (Target In-Service August 2009 with full compliance with new financial standards before required in January 2011); followed by Enhanced EAM Functionality (Target In-Service Q2 2010) and concluding with the replacement of the Customer Information System functionality (In-service to be determined).

The entire **Cornerstone Program** is designed to achieve each of the five elements of the Cornerstone strategy (ref. list to the left).

****

The **Cornerstone Phase 1 Project** mobilized for its discovery phase (Stage 1) in September 2006 and achieved Go-Live as planned on June 2, 2008. This report provides the highlights of the Phase 1, Stage 2 (Design, Build, Test & Deploy) portion of the Project, and represents formal acknowledgment that the Project met its objectives and has handed over accountability for the ongoing operation, maintenance and support of the Project's deliverables to the new Enablement organization.

Cornerstone Strategy

- Support Corp Mission
- Renewing, Sustaining Support for Internal Controls
- Better Business Ops
- Enable Regulatory Objectives
- Drive Employee Engagement

Start (Discovery) – Sep 2006

Go-Live – Jun '08

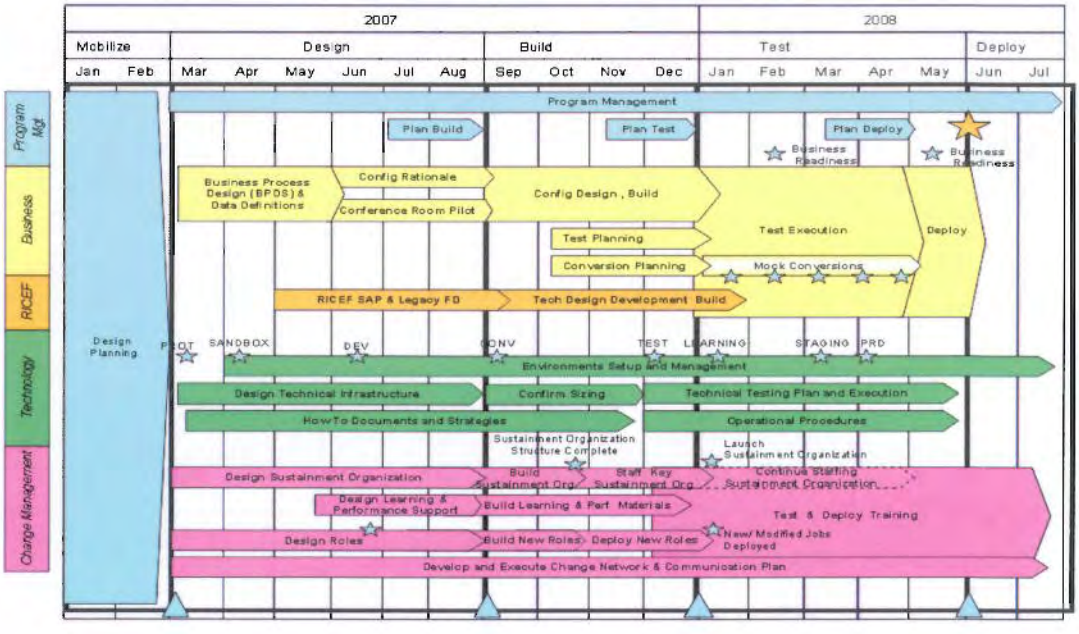
Handover Systems to Inergi Sustainment – Aug 2008

Handover to New Enablement Org – Sep 2008

Approved Funding $146M

Total Costs by Dec 2008 are Forecast to be $125M plus $2M for Enablement Work Program

Cornerstone Project – Stage 2 Schedule



Phase 1 Project Scope and Deliverables

PassPort 6 was installed in Hydro One in 1998 and had been used since then for supply chain, work management, asset management, and accounts payable. The 1998 installation was compromised due to two key changes in direction: a) the decision to include the Distribution side of the business in what had previously been a Transmission-only solution; and b) the decision to have all Y2K products in place certified and tested a year early, by year-end 1998.

In order to make the scope achievable in the available time, much of the functionality that was available within the Passport tool was not "turned on" for the business, and the solution was heavily customized during and after go-live to meet business needs. As a legacy, there existed numerous bolt-on's and custom solutions that interfaced with PassPort and that attempted to overcome the business limitations of that initial solution. These limitations hindered the ability of the company to meet its aggressive capital program and continuing to maintain the heavily customized PassPort system was costly, complex and risky.

To Replace PassPort with SAP for:

- Supply Chain
- Work Management
- Asset Management
- Accounts Payable

Cornerstone Phase 1 was intended to replace the Passport functionality with SAP functionality. The Phase 1 scope consisted of and was restricted to doing what was required to "turn on" the SAP product and make it work as designed in the business, with no SAP core software customizations. In a business context, "what was required" consisted of:

Changing Business Processes and Not Customizing the New Software to Accommodate Existing Business Processes

..... With a Strong Focus on Effective Organization Alignment

- Changing business processes that touched PassPort, to maintain or improve business performance. The product was not to be customized to accommodate current business processes; rather, the approach was to replace current business processes with Industry Standard Practices
- The Project's approach was to reconnect to SAP, replace within SAP, or decommission applications in the interest of three criteria:
  - Mitigate project risk (complexity and cost)
  - Enable future Cornerstone phases
  - Minimize life cycle application / IT costs to the business
- Migration or replication of data needed to execute the SAP solution
- Eliminate duplicate databases, the one source of truth would be SAP
- Data entry at source, distributed ownership of data
- Establishment of an effective Organization Alignment (Change Management) capability within the project to minimize disruption, maximize adoption, and reduce the overall cost and risk of implementation
- Enhance Hydro One's in-house Project Management capability to manage and implement large Business Transformation Projects utilizing complex Software products

Phase 1 business benefits included:

- Improved Asset Lifecycle Decision-Making
- Enhanced Work-Program Planning & Execution
- Setting the stage for subsequent phases of the Hydro One System Replacement Strategy.

Project Governance, Structure & Staffing

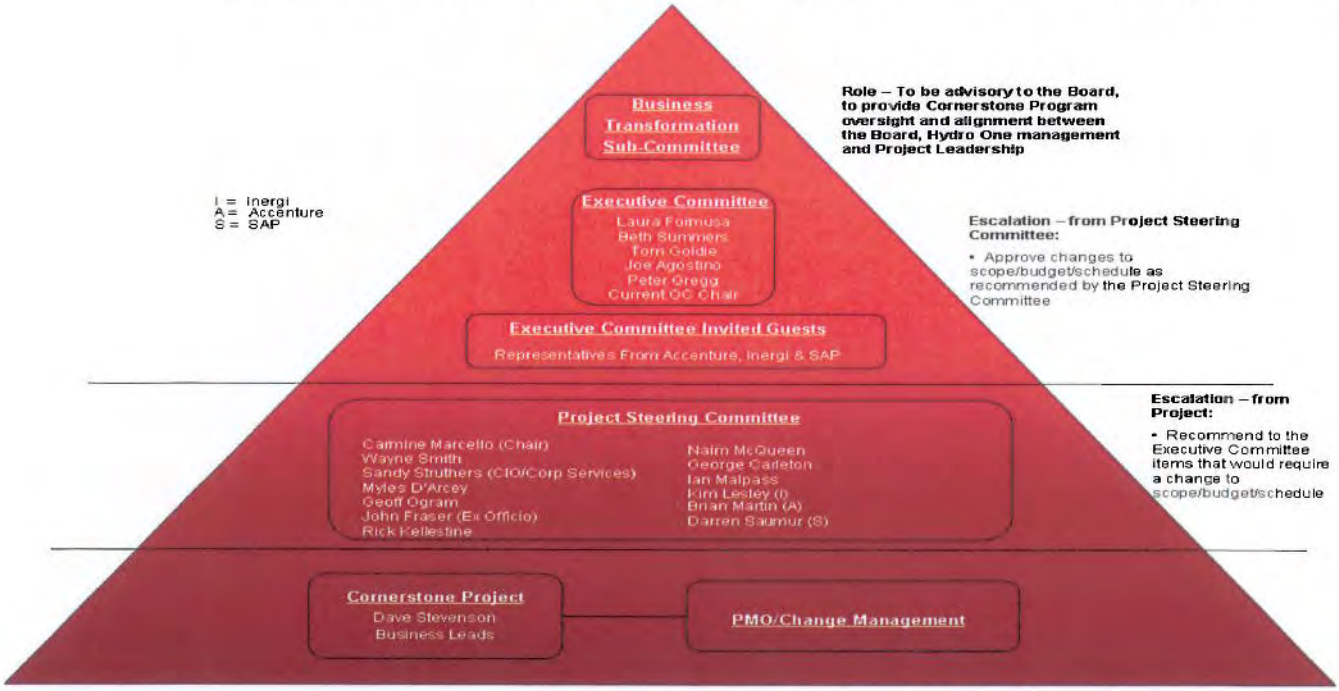
4 Key Elements:

- Board BT Sub-Committee
- Executive Committee
- Program Level Oversight
- Steering Committee

The Cornerstone Program Governance Structure was a unique & "first time" approach in the company and structured to help ensure success. The governance structure included establishing a new Board Sub-Committee, the Business Transformation Sub-Committee. This sub-committee provided alignment with the Board, Hydro One Management and Project Leadership. It was established to be advisory to the Board and to be responsible for overseeing the staged process of the Enterprise Application Systems Replacement Strategy's development and implementation.

In addition, an Executive Committee, Program Level Oversight and a Project Steering Committee consisting of senior Hydro One and key external vendor & outsourced service provider executives ensured linkage and alignment between early phases of the program as well as the needed outcomes over the life of the program into future phases. This linkage was intended to assist the program to sustain its potential to deliver its promised value.

These committees collectively made high-level decisions on the project and provided guidance to assist the progress of the project from a corporate or enterprise point of view. In addition to providing management level reviews of project status (especially budget and schedule), approval of major milestones and scope changes, priority setting, etc. operational oversight and guidance provided an integrated view of operational needs across lines of business within the business. Business Leads had support and authority to act, work to achieve consensus toward corporate goals and objectives and championed the project within members' respective organizations across Line of Businesses and corporately, basically communicating as 'one voice' with common themes and messages ensuring project success.



In addition to the governance related committees, the Phase 1 Project included a number of QA review activities in its schedule. These included the following:

- SAP QA Reviews at predefined milestones in the schedule
- Accenture Partner Reviews at major milestones
- KPMG Review of Bill 198 and I/T security controls
- Regular Internal Audits
- Senior Management "Lessons-Learned" reviews
- On-going peer reviews of most deliverables prior to these deliverables being submitted for approval

Phase 1 Team Values

(Became the Program Level Cornerstone Values)

Our Phase 1 Team Values were developed amongst the Project Leadership as the Project evolved. Following an executive lessons-learned exercise with the Project Leadership, these (excluding the ones in *italics*) became the overall Cornerstone Values. For Phase 2 and subsequent projects, Cornerstone Project team members are committed to supporting our Hydro One values, our Hydro One Strategic Five Year Vision and are encouraged to demonstrate the Cornerstone Values to promote excellence and growth.

Team Approach

We believe that a team approach is the best way to accomplish positive deliverables. This is how we show it:

- Collaborative working relationships
- Transparency in the way we manage information
- Badgeless teams
- Everyone owns the project and their team
- Our strength is the team, not the individual
- Shared decisions; Shared learnings
- We all contribute to making decisions; we accept decisions once made
- Our sponsors are there to help us; we are there to help them
- *The 3-legged stool concept. Hydro One is the seat supported by 3 legs – Accenture, SAP and Inergi / Cap Gemini, any one of the four parts is ineffective without the other 3*

Treat Each Other with Respect

We treat each other with respect. This is how we show it:

- Trust in the abilities and contributions of others
- Be respectful to each other at all times
- Be client focused, whether from outside or inside
- Adapt to changing circumstances and new ideas
- Team needs to be on same page – no question is a "dumb" one

Pride in our Work

We take pride in our work. This is how we show it:

- We accept responsibility for everything that we do
- We have a clear understanding of Individual and Team deliverables
- We always seek clarity, "uncertainty" needs to be eliminated
- We never just "show up"
- We focus on the job that needs to get done
- We focus on the issue, not the person
- We have fun because it is all a part of the experience

Managed Innovative Environment

We encourage and foster a Managed Innovative Environment

- *If we aren't making mistakes, we aren't "pushing the envelope"*
- *Crawl, Walk, Run*
- *Build a solid & simple foundation, the "bells & whistles" are for future phases*
- *Learning is a continuous process and mistakes & errors are part of the process*

Project Milestones

A set of major milestones was established early in the Project and accepted / approved by the Board's Business Transformation Sub-Committee. All of these milestones were achieved.

All Major Milestones Achieved

- Business Process Designs 70% Complete – July 2007
- SAP Development Environment Available – August 2007
- Business Process Designs 90% Complete – September 2007
- Value Realization Enabling Actions – September 2007
- Target Enablement Org Defined – October 2007
- SAP Configuration Activities Complete – November 2007
- 2007 Project Costs on Budget – December 2007
- Enablement Organization Initiated – January 2008
- Test Readiness - January 2008
- Build Phase 80% Complete – February 2008
- Training Materials, Test & Maintenance Plans Complete – March 2008
- Detailed Business Readiness Plan – April 2008
- Go-Live Preparations Completed – May 2008
- Go-Live – June 2008
- SAP System Acceptance by Enablement – August 2008
- Project Closure Report – October 2008
- 2008 Project Costs on Budget – December 2008

Project Financials

Approval by the Board's Business Transformation Sub-Committee in May 2007 resulted in the release of $146 million to fund Phase 1 of the Cornerstone Program.

Life-to-date costs to the end of September 2008 plus forecast-to-completion costs total $127M. This includes:

Board Approved $146M

Final Project cost $125M

Plus $2M for Enablement Org Startup

- $125M for the Phase 1 Project
- $2M approved by the Executive Committee on September 11, 2008 to fund the initiation of the new Enablement Organization's work program
- The Project costing model was altered by Corporate Finance in March 2008, to capitalize $4.5M (forecast to Dec. 08) of internal Hydro One project labour costs. The Project was estimated on the assumption that internal labour costs would be borne by the individual Lines of Business that contributed the staff to the project and that only incremental costs would be charged to the Project.

Total use of the Project's $23.4M contingency will be $4.4M (19% of the contingency). This would have been 0% if internal labour charging had not been introduced.

Project Statistics

The following list contains some of the Program's key statistics:

- Business Process Designs (BPD's) – 81
- Business Process Flows developed and transferred to Enablement - 226
- Functional Designs for Interfaces, Conversions, etc – 147
- Reports – 17
- Extensions - 31
- Interfaces – 44
- Data Conversions – 46
- Testing Cycles – 4 (Application Product Tests 1 & 2, Integrated Product Tests 1 & 2)
- Mock Conversions - 6

- Peak number of Testing Scenarios (during IPT2) – 296
- Peak number of Testing Scripts (during IPT2) – 3,010
- Issues addressed through the Issue Management Process – >7,500
- Changes addressed through the Scope Change Management Process – 481
- Risks addressed through the Risk Management Process - 71
- Calls to Help Desk – 25 current daily average; peak 174/day
- Users Logged into SAP daily - >1,000
- Number of Inergi Help One Desk EARS trouble tickets – >6,000
- Work Orders Released per week – 2,700
- Shopping Cart Items created per week – 1,500 & increasing by 100 per week
- Manual PO Header Items per week – 600, with an average of 2 lines / PO
- Receipts Acknowledged per week – 1,900
- Invoices Logged per week – 3,300
- Vendor Payments Clearing per week – 900
- Project Person-days of Effort (Reported) – 43,265 vs Planned Effort of 47,928 days
- Peak number of meetings per day – 55
- Cups of coffee consumed at Project meetings in Design, Build, Test & Deploy – 55,000

TRAINING HIGHLIGHTS

Location	Facility
GTA	Trinity (2)
	Clegg Rd. Markham
	Mural St. Richmond Hill
Pickering	CMS
South West	London Buchanan TS
West Central	Dundas - FBC
Central	Peterborough - SC
East Central	Tweed - AO
East	Merivale SC Nepean
Barrie	Barrie – FBC(2) & OGCC
Northeast	Sudbury Hamner TS
Northwest	Thunder Bay

- The March 31 - May 30 schedule included ~700 sessions and over 8,000 available seats
- 2,208 end users were targeted for classroom-based Cornerstone training
- In addition to a webinar schedule for employees, Executives and their Executive Assistants were invited to a "drop in clinic" on May 28th
- A post go-live schedule was drawn up to ensure that there was qualified support for the first 2 weeks of Go Live for Hydro Executives
- No Cornerstone training was scheduled for first 3 weeks after Go-Live
- 4 Training rooms were booked for potential Post Go-Live Training (2 rooms in Barrie, Mural and Trinity)
- A Post Go-Live training model was developed assuming 20% no-show rate
- "No-shows" were tracked and information up to May 15 was sent to the Receiving Directors and LOB Leads to assess if people on the "no-show" list actually needed to attend training or needed to be scheduled post go-live
- Training Schedule was transitioned to the Enablement Organization (Ray Gee)

Training Statistics

- By Go-Live, 1,815 employees were trained, or 82% of target.
- Number of training seats by Line of Business (LOB); Customer Operations – 1,103; Grid Operations – 2,428; Asset / Investment Management – 786; Engineering & Construction Services – 1,211; Finance – 265; and Supply Chain – 117. Total number of training seats = 5,910.
- Asset Management, Finance & Work Management Training Courses delivered – 41*
- Training Manuals – 307*
- SAP Simulations – 246*
- Job Aids Developed – 31*
- Hydro One Staff Trained – 1,815*
- * (Supply Chain & A/P training stats not available at time of report)
- 50 trainers, 5 week train-the-trainer session
- End user training curriculum included:
  - 2 introductory computer based training courses
  - 65 courses
  - 25 training streams
  - 12 training location sites around the province

Cutover to Go-Live

Highlights of the approach and methodology for the Project's cutover to Go-Live include:

Multiple Trial Runs for Data Conversion

- Multiple trials for the data conversion routines allowed us to define the order of conversion but also assess the best case timeline. In this case 10 days X 24 hours of active hour by hour conversion was required
- This defined the Passport functional and batch freeze dates and the impacts to the business

Temporary Resources

- Facilitation ensued to guide the impacted lines of business in defining manual processes to bridge the gaps during the 10 day cutover period
- Resource requirements to sustain the cutover activities were assessed and temporary resources were acquired to assist in the manual data entry during and after cutover

2 Dress Rehearsals

- Two dress rehearsals were conducted to test the cutover process and to assess the major risk areas: this was determined to be multi-team tracking, communication and our ability to sustain 24x7 vigilance over an extended period of time
- Project leadership was given clear instructions of the process, the challenges and known gaps. The gaps were addresses with changes in team structures, processes, and communications

10-Day Cutover

- The final 10 day cutover ended June 2nd with little deviation from the practice runs

Post Go-Live Support

From cutover on June 2nd, a post Go-Live support team was active through June and July, and continued in this support role until formal handover of responsibilities from the Project to the Enablement Organization on September 15, 2008.

Ready for Worst Case Scenario

Primary risks of enterprise wide deployment addressed prior to cutover and rehearsed:

- Ready for the worst case scenario
- Provided clear instructions to users of support structure and set expectations for active communications

Multi-Layer Support

- Mitigated bottlenecks or potential for swamping of support staff to the point where they were unable to function effectively
- Defined the reporting metrics to assist in decision support for project leadership

War Room

Highlights of the post Go-Live initiative include:

- Multi-layer support organization:
  - Field support primes clearly communicated to users in advance
  - War room was able to deal with trouble tickets
  - Technical support staff was able to prioritize problem areas
  - Reporting team was able to consolidate and pinpoint trends
  - Project leadership was able to make decisions based on prioritized problem areas

Over 100 Staff to Deal with Issues

- More than 100 staff were in place to deal with issues as they arose

Through June & July

- Support was maintained through June and July
- Transition to Enablement was completed mid September

TRANSITION TO ENABLEMENT

ENABLEMENT ORGANIZATION ESTABLISHED JANUARY 2008

- ACCEPTANCE OF PROJECT DELIVERABLES
- OWNS SAP APPLICATION
- PROCESS & DATA MGMT
- VALUE REALIZATION
- PERFORMANCE IMPROVEMENT
- TRAINING
- TECHNICAL SOLUTIONS

In January 2008, the Cornerstone Enablement organization was established, reporting to Beth Summers, Executive Vice President and Chief Financial Officer. The Enablement organization is the corporate owner for the SAP application accountable for process and data management, value realization and performance improvement, and training and technical solutions related to the systems and processes implemented by the various phases of the Cornerstone program. Having accepted the Project deliverables, Enablement's goal is to ensure that Hydro One leverages the Cornerstone Assets to their full potential.

Enablement was created as a planned, consolidated effort to continuously improve, to learn as we go, and to more effectively direct our talents to the things we do best. Other objectives of the Organization are to:

- Continuously leverage the Cornerstone investment
- Improve impacted business processes on an ongoing basis
- Identify and prioritize business improvements based on measurable and verifiable value
- Own and manage data as an asset to drive better analysis and decision making
- Increase user end productivity and the quality of work.

Vision

The Enablement Organization will drive productivity through enterprise process improvements and ensure we leverage the Cornerstone Assets to their full potential.

Guiding Principles

- Continuously leverage the Cornerstone investment
- Improve impacted business processes on an ongoing basis
- Identity and prioritize business improvements based on measurable and verifiable value
- Govern data as an asset to drive better analysis and decision making
- Increase end user productivity and quality of work

The four pillars of the Enablement Organization are defined as Business Process, Data, Performance Improvement, and Technical Solutions and Training.

Key accountabilities and areas in the Enablement organization include:

Process and Data
- Process and Data Council
- Enhancement Process
- Issue Management

Performance Improvement
- Value Metrics
- Diagnostic Metrics
- Performance Improvement Support

Business Solutions and Training
- Training
- Power User Network
- Business Solutions

LESSONS LEARNED

Lessons Learned is the final step in Hydro One's eight step structured approach to change. It completes the process of structured change by providing an opportunity for people involved in the planning and implementation of a change initiative to reflect on what went well and what could have gone better in managing the project and change impacts. Cornerstone Phase 1 conducted several lessons learned exercises for the purposes of constant evaluation and feedback (real time) during Phase 1 implementation (see Attachment 1 for summary of all lessons learned reviews). The following lessons learned were conducted as part of a final post implementation review:

MAJOR LESSONS LEARNED:

MORE DETAIL IN REQUIREMENTS DEFINITION

- There seem to have been gaps between the process descriptions provided by Hydro One to potential vendors (BPD's) as to what was required to run the business and what was eventually delivered as to functionality. There is a need to be more detailed in specifying requirements. Where the expected delivery will not be realized, users need to be made aware of this in advance

GREATER CLARITY ON WORLD CLASS BEST PRACTICES

- While Accenture represented that they would advise us on how to implement **world-class best practices**, this did not appear to be realized. Such commitments need to be better documented and followed through

KEY REPORTS UNDERSTOOD & AGREED EARLIER

- **Reports** considered essential to run the business by management (e.g. aged A/P, Materials Status Report) were not specified and agreed to by management and the project team. In future, the key reports and information need to be agreed between users and project management as part of the delivery

BETTER UNDERSTANDING IN LOB'S REGARDING DATA CONVERSION

- The departments that will use the system need to be prioritized and the most critical should be **tested and trained first** (not last). In this conversion, the critical supply chain was trained and their systems tested at the very end
- A **single list of fixes** needs to be prepared - starting right at conversion - rather than having several lists that are consolidated months after go-live

BETTER UNDERSTANDING OF TRAINING PRIORITIES

- Lack of clarity on roles and accountabilities between LOBs, receiving organization and Enablement, is causing confusion around who should "fix" issues

MORE ATTENTION IN IDENTIFYING ALL STAFF WHO REQUIRE TRAINING

- There needs to be better inclusion and sign off by LOB staff as to which computer files and specific fields therein will be considered the "source of truth" and converted, so that there is ownership of **data and transactions converted**
- **Adequacy of testing** is a concern as some applications passed the tests and then could not replicate that functionality post conversion (e.g. paying vendors)

TRAINING NEEDS TO INCLUDE BUSINESS PROCESSES AS WELL AS SYSTEMS

- **Training needs to include the business processes** not just the screen details
- Someone needs to be identified ahead of time **to own and set the rules**
- A **website with important information** needs to be established for the Enablement function communications ahead of time rather than afterwards

GREATER CLARITY REGARDING POST GO-LIVE ACCOUNTABILITIES

- Ensure all **staff needing training** receive it (e.g. draftsmen)
- Consider buying user-friendly **GUI front-ends** to make data entry easier

Project Records

PM Records Archived

Project Management records (plans, schedules, status reports, financials, legal / contractual documents) are stored in secure Hydro One PMO cabinets and available through these PMO staff.

Project Deliverables Transferred to Enablement Org

Project deliverables will be transferred from the Accenture sites to Hydro One by the end of 2008, under the guidance and control of the Enablement organization. Any questions should be directed to Ian Malpass.

Project Closure Sign-off

Handover from Project to Enablement was advanced from October to Sep 15

The proposed handover process, timing and related Project deliverables were reviewed by the Enablement organization, BIT and Inergi.

Since the beneficiaries of the Phase 1 deliverables include all Hydro One Lines of Business, the new Enablement organization accepted the Project deliverables on their behalf.

To establish overall project closure, on September 11, 2008 the Project recommended to, and received approval from the Executive Committee to advance the planned handover from Cornerstone Phase 1 to Enablement from October to September 15th.

From mid-September until the end of 2008, remaining Project staff will continue to provide support to Enablement, as required.

ATTACHMENT 1 - LESSONS LEARNED (CONTINUED)

Attachment 1 – Lessons Learned (Continued)

During the life of Phase 1, a number of reviews were conducted to identify Lessons Learned, and the results of these reviews were taken into account during the balance of the Phase 1 project. The results of the final reviews are included in the body of the document above. The specific findings from the earlier reviews are included in this attachment.

Lessons Learned - January 2008

MAJOR LESSONS LEARNED INCLUDE:

A lesson learned exercise was conducted with Phase 1 Hydro One Leads and Phase 2 Program Leadership to bring together lessons learned from Cornerstone Phase 1 that would assist Cornerstone Phase 2 during Discovery and Design Phases. We recognized that the lessons learned process offers value to immediate project teams and for future project planning. Key themes included:

ESTABLISH CLARITY IN ROLES AS EARLY AS DISCOVERY

- During **Discovery** ensure there is clear understanding of roles and responsibilities across all parties; that time is budgeted in the work plan for QA's, Audits and Deliverable Reviews; full visibility into work plan, critical path and staffing plans

DETAILED STAFF PLANNING FOR INERGI STAFF FOR BALANCE ACROSS PROJECT AND SUSTAINMENT

- **Staffing** plans should accommodate Inergi plans; recognize and manage turnover of consultant staff; identify change management/tech/data resource for each team to support lead; knowledge transfer in place between project phases; delineate project and line of business roles; recognize and manage staff availability issues from lines of business

GREATER FOCUS ON MIDDLE MANAGEMENT STAKEHOLDER INVOLVEMENT & READINESS

- **Stakeholder Alignment and Impacts** recognized the additional focus needed on middle management. Receiving Director/organizational readiness regarding resource needs, responsibilities and expectations need to be set sooner
- **Communications** recognized the need for a coordinated and consistent approach to communications across all stakeholder groups; the volume of deliverables and effort required to develop communications; the level of expectation on lines of business for performing communication roles
- **Governance/Decision Making** plans include costs for rework, determine assumptions for IFRS, enablement and new external auditor; communicating key decisions to project team members and sponsors

GREATER FOCUS ON EXTERNAL INFLUENCES SUCH AS IFRS, AUDITS, ENABLEMENT

- **Project Processes** require greater visibility into Accenture work plan and critical path including an integrated plan, acceptance criteria, deliverables and services to project staff enabling them to meet schedule and scope and deal with issues impacting project success

ALLOW MORE REALISTIC TIME FOR QA ACTIVITIES

- **Quality Management** focused on allocating time in the work plan for all quality reviews; tight scope definition and communication around the business case (what and why we are doing this)
- **Vendor Management** lessons emphasized the collaborative approach between the parties, clear understanding of leadership accountabilities and knowledge transfer between phases
- **Systems/Equipment/Facilities** requires a contingency plan for time to adjust to the "new" and accommodate this in the overall project plan

Lessons Learned - February 2008

A review was conducted on training activities as preparations for critical business readiness and cutover activities were underway, key findings included; Train the Trainer sessions require learning SAP/LOB business processes/instructional techniques and customization of LOB training materials; Process Overviews are essential and were missed in Phase 1 end of build phase. In order for training to be successful and to have all LOB's aligned with process implications these reviews need to occur prior to training implementation; Trainers had varying degrees of exposure to SAP however they did not have the SAP expertise to

manage the anticipated questions from end users. A consistent strategy for all trainers to handle the SAP related questions that arise during training is needed.

TRAIN-THE-TRAINER EFFORT REQUIRES MORE TIME

BUSINESS PROCESS OVERVIEWS NEED TO BE COMPLETE & SIGNED OFF

TRAINING NEEDS TO BE PROCESS-BASED, NOT FUNCTION-BASED

Lessons Learned (Training/Communications) – June/July 2008

- Training developers did not have sufficient access to process team experts on the relevant SAP processes and develop training materials early enough in the project
- Training needs to be processed-based, not function-based – need "day in the life" approach
- More rigorous effort required to assign end-users to training so that users are trained on processes relevant to their roles in the business
- The HOLMS LMS system was not able to handle the volume of end-users for training registration and the project resorted to excel spreadsheet for tracking. Discussions around how the tool will be leveraged for Phase 2 have begun and a mitigation strategy will be put in place as contingency
- Ensure that there are sufficient resources to handle the multiple support roles being provided- e.g. trainer, Subject Matter Expert (SME), coach, Project SME, training materials updater
- Effective instructional techniques are critical to the transfer of learning. Improperly trained trainers who do not know how to present the material are visible to the participants
- Impact was defined by the complexity of the tasks to be performed and the amount of time that a user would typically spend in the SAP system. A large complement of staff who performed relatively simple but key tasks were targeted, too late for communications and for formal training/support.
- Recognition for cultural norms associated with user expectations for a "show me" attitude from end users that requires details to be available and that requires real-life illustrations of how things will work and, a short term focus due to the demands of the work day.
- A dedicated Change Network, were asked to deliver communications and to monitor interest/engagement in the workplace. Most change network agents did not have the skills or knowledge to carry out this role. Accommodations have been incorporated for Phase 2

Additional Lessons Learned – Leadership – June/July 2008

CONTINUE WITH STRONG EXECUTIVE ENGAGEMENT THROUGH THE LIFE OF THE PROJECT

EARLY IDENTIFICATION OF KEY RESOURCES TO TRANSITION TO ENABLEMENT

CONTINUED USE OF CHANGE MGMT METHODOLOGY WITH MORE FOCUS ON MIDDLE MGMT. ENGAGEMENT

- Continue with effective corporate and project governance:
  - Strong Program Management Office to ensure continued cost, scope, and schedule control and risk mitigation
  - Establishing a new Hydro One "smart-buyer"/quality officer role to ensure adherence to a robust project methodology and provide oversight and control of work performance by Accenture and Inergi
  - Executive engagement, including Board involvement through the Business Transformation Committee
- Identify key resources from a project perspective who would transition to the Enablement organization post Go-Live
- Maintain Quality Assurance, through evaluations by Internal Audit, External Audit, Accenture and SAP at repeated intervals throughout the project
- Continue with a robust change management methodology, with heightened focus on engagement of middle management throughout the project
- Maintain effective cooperation between the affected companies (Hydro One, Inergi, Accenture, SAP)
- Engage and involve staff and management from the "receiving" organizations

hydro one

CORNERSTONE PHASE 2

PROJECT CLOSURE REPORT



1. **Submitted by:** Verne Webber
Director – Project Mgmt. Delivery

2. **Recommended by:** Carmine Marcello
SVP – Asset Management

3. **Reviewed by:** Judy McKellar – Director HR
Karen Newman – Corporate Controller
Mike Winters - CIO

4. **Approved by:** [ref EC Minutes]
Executive Committee – Nov 17, 2009

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Cornerstone Program Overview

In order to achieve the **Cornerstone Strategy**, a program was put into place with two main thrusts. One thrust is a four phase staged plan to replace core, enterprise, "end-of-life" Information Technology systems with one, or at most two, modern, "out-of-the-box" solutions. The other thrust is a transformation of the corporate culture through Corporate leadership, and supported by Business Information Technology's (BIT's) Business Architecture organization to ensure adherence to new, "Industry Standard Practices / Processes" to continually capture the planned efficiencies.

The Business Architecture organization is the corporate owner for the Cornerstone applications, once implemented, and is accountable for ongoing process and data management, training and technical solutions related to the systems and processes implemented by the various phases of the Cornerstone program. The overall aim is to ensure that Cornerstone assets are leveraged to their full potential.

The four phase plan began with the Enterprise Asset Management (EAM) Core Functionality replacement (Completed June 2, 2008). Next came Phase 2, which has replaced the old Finance/HR/Pay Functionality, and was designed to be compliant with the new IFRS financial standards. Phase 3 (currently in the planning stage) is intended to address requirements for additional business reporting, analytical tools, enhanced support for planning and scheduling, and support for other Line of Business process improvements. Phase 4 is planned to replace the existing Customer Information System functionality.

The entire **Cornerstone Program** is designed to achieve each of the five elements of the Cornerstone strategy (ref. list to the left).

Cornerstone Strategy

- Support Corp Mission
- Renewing, Sustaining Support for Internal Controls
- Better Business Ops
- Enable Regulatory Objectives
- Drive Employee Engagement

****

The **Cornerstone Phase 2 Project** mobilized for its discovery phase in September 2007 and achieved Go-Live as planned on August 5, 2009. This report provides the highlights of the Phase 2 Project, and represents formal acknowledgment that the Project met its objectives and has handed over accountability for the ongoing operation, maintenance and support of the Project's deliverables to BIT's Business Architecture organization. The high level schedule is shown below.

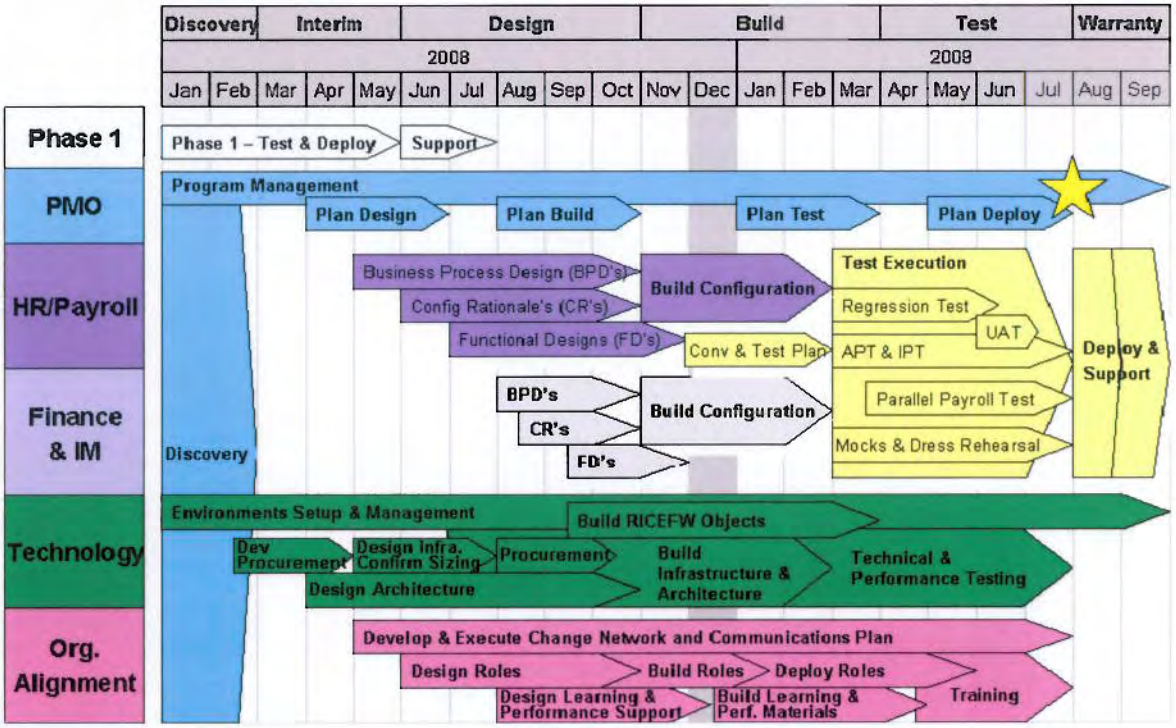
Start / RFP – Sep '07

Go-Live – Aug '09

Handover Systems to Inergi & Business Architecture Sustainment – Oct 2009

Approved Funding $183M

Total Costs are Forecast to be $168M



Phase 2 Project Scope and Deliverables

In 2006, Hydro One developed and reviewed with the Board of Directors an IT strategy that called for replacement of business systems (and associated bolt-ons,) which had reached or were approaching end-of-life, with one or two off the shelf software package solutions. In 2007, to commence implementation of this IT strategy, Hydro One initiated Cornerstone Phase 1, an SAP Enterprise Asset Management solution; this project was completed on June 2, 2008.

Cornerstone Phase 2 continued to expand Hydro One's SAP solution to replace PeopleSoft, eliminating the need for the temporary SAP-to-PeopleSoft interfaces from Phase 1 and bringing a greater proportion of Hydro One's core business systems under vendor support. In addition, Cornerstone Phase 2 has replaced the in-house application, BRPR, which tracks the release of work from Asset Management to the field; this was the first step in the deployment of SAP business planning and investment management functionality. Lastly, Cornerstone Phase 2 replaced legacy Data Warehouse applications and databases with a single SAP business warehouse and a reporting tool, to provide one source of reliable business data. Phase 2 completed a successful go-live on schedule on August 5, 2009.

To Replace PeopleSoft & BRPR with SAP for:

- Finance
- Pay / HR
- Investment Management

And to Implement:

- BI Reporting
- IFRS & GAPP Parallel Books in 2010
- IFRS Compliance by 2011

In addition the defined project scope outlined above was, and continues to be a parallel effort to address International Financial Reporting Standards (IFRS) requirements. This parallel project is reviewing Hydro One accounting practices and implementing the necessary changes to enable the parallel running of 2 sets of books – GAPP and IFRS starting in 2010, and to be compliant with IFRS by January 1, 2011. A substantial portion of the IFRS requirements were incorporated into the August 5th deployment. The remainder of the IFRS requirements is being addressed in the final stage of the Phase 2 Project, planned for completion in Q4 2009.

Similar to Cornerstone Phase 1, the scope consists of and is restricted to doing what is required to turn on the SAP product and make it work as designed in the business, with no SAP software customizations or unnecessary enhancements.

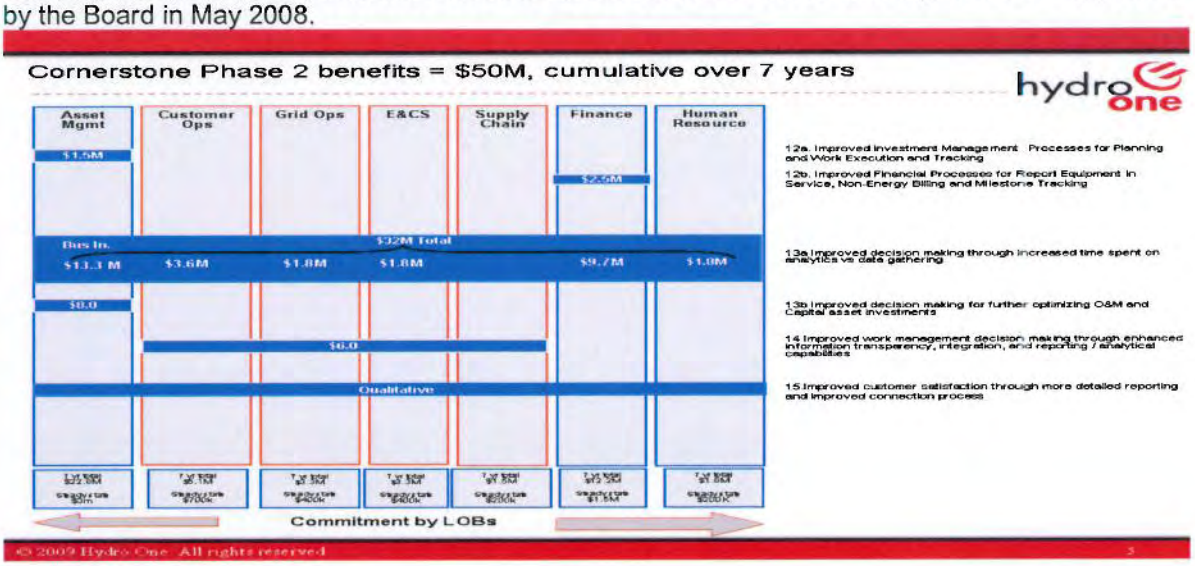
Benefits

Cornerstone Phase 2 will bring the following business benefits to Hydro One:

- Critical Finance & Payroll functions will be moved to a fully vendor-supported environment
- Hydro One will avoid prolonged reliance on temporary financial interfaces between SAP and PeopleSoft
- One integrated system of record for all asset and financial data

The projected benefits of $50M were identified in the Business Case Summary, and were approved by the Board in May 2008.

Phase 2 Benefits expected to be $50M cumulative over 7 years



Project Governance, Structure & Staffing

The Cornerstone Program Governance Structure introduced in Phase 1 was a unique & "first time" approach in the company and structured to help ensure success. The governance structure included establishing a new Board Committee, the Business Transformation Committee. This committee provided alignment with the Board, Hydro One Management and Project Leadership. It was established to be advisory to the Board and to be responsible for overseeing the staged process of the Enterprise Application Systems Replacement Strategy's development and implementation. This structure remained in place for Phase 2 and continued to help drive the Cornerstone objectives to successful completion.

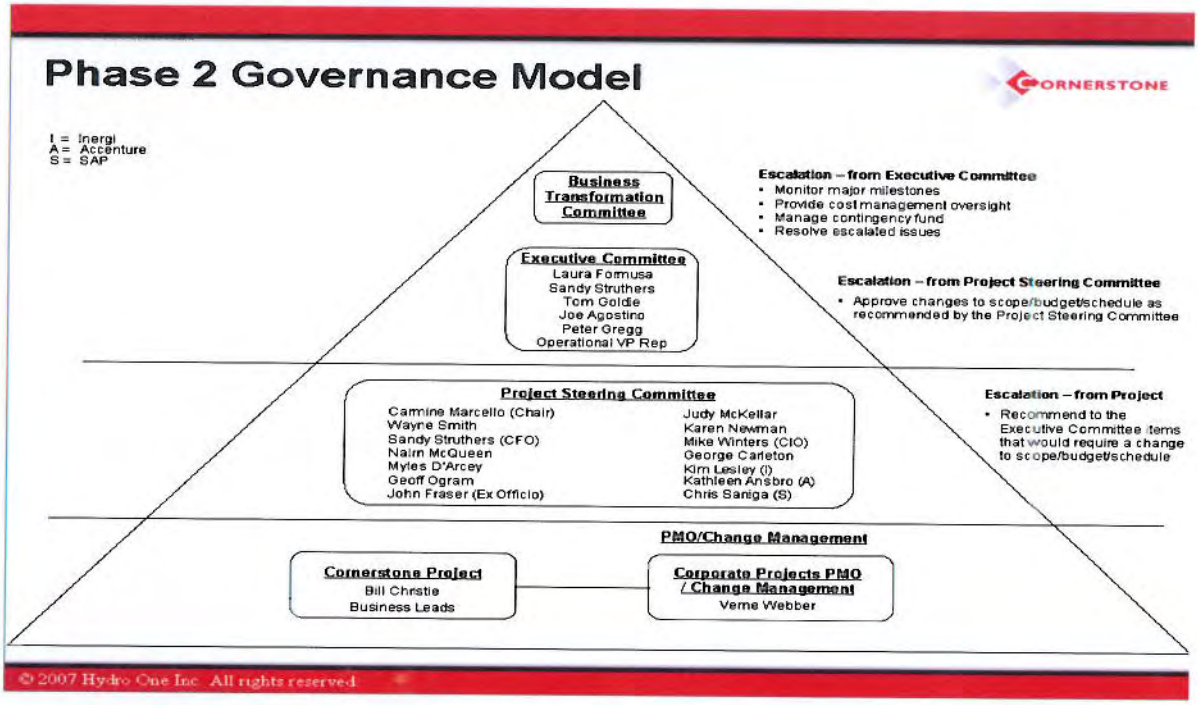
In addition, an Executive Committee, Program Level Oversight and a Project Steering Committee consisting of senior Hydro One and key external vendor & outsourced service provider executives ensured linkage and alignment between early phases of the program as well as the planned outcomes and benefits over the life of the program into future phases.

Through regular status meetings, and with input from a number of QA Reviews, these committees collectively made high-level decisions on the project and provided guidance to assist the progress of the project from a corporate point of view. In addition to providing management level reviews of project status (especially budget and schedule), approval of major milestones and scope changes, priority setting, etc. operational oversight and guidance provided an integrated view of operational needs across lines of business within the business. Business Leads had support and authority to act, work to achieve consensus toward corporate goals and objectives and championed the project within members' respective organizations across Line of Businesses and corporately, basically communicating as 'one voice' with common themes and messages to help ensure project success.

Key Elements:

- Board BT Committee
- Executive Committee
- Program Level Oversight
- Steering Committee
- Various QA Reviews
- Enhanced Vendor Due Diligence

Phase 2 Governance incorporated Lessons Learned from Phase 1



QA Reviews:

- Accenture
- SAP
- Internal Audit
- External Audit
- eHealth Comparison

In addition to the governance related committees, the Phase 2 Project included a number of QA review activities in its schedule. These included the following:

- SAP QA Reviews at predefined milestones in the schedule
- Accenture Partner Reviews at major milestones
- Internal Audit Reviews
- Participation of External Auditors

eHealth Recommend-ations

Compared eHealth Audit Recommend-ations with Hydro One Approach in Similar Large Projects

Strong & Effective Governance

Strong Project Management

PMI / Industry Standard Project Management Methodology & Tools

Procurement Decisions made by Hydro One Staff, not Consultants

Well Documented Audit Trail for Major Decisions and Funding Approvals

eHealth Failed; Cornerstone was Successful

Coincidentally, while we were developing the Phase 2 lessons learned section for this Project Closure Report, the Office of the Auditor General issued a report critical of the Ministry of Health and Long Term Care's handling of the Ontario Electronic Health Records Initiative.

Corporate Projects management took this as an opportunity to review the Cornerstone approach to project governance, project management and procurement processes with respect to the concerns raised by the Auditor General.

The review team found no need to increase the project oversight or approach used within Cornerstone to address the kinds of concerns raised by the Auditor General. This finding was based on:

Governance Structure

- A dedicated Board Committee, the Business Transformation (BT) Committee that regularly reviews the Project's status, progress against defined milestones and costs. Overall Project funding was approved by the Board. The BT Committee was the approval authority for any release of the Project's contingency fund
- A very engaged and informed Executive Committee reviewed and approved, or recommended for BT Committee approval, all release of funds within EAR / OAR structure
- A monthly Project Steering Committee, comprised of Hydro One senior management, met monthly to review project progress and address issues and emerging risks throughout the project
- Internal and external Audit and Quality Assurance reviews are conducted and the results communicated throughout the project

Project Management

- Corporate Projects' Program Management Office had overall accountability for project delivery
- Accenture provided day to day project management under a fixed price contract with financial penalties (holdbacks) to help ensure the objectives of each phase were met
- Documented processes for issue, risk, schedule and cost management align with the Project Management Institute (PMI) approach
- Each team was lead or co-lead by a Hydro One team leader. Consultant staff did not have procurement authority

Procurement & Related Documentation

- All requests for funding are well documented, including business rationale / business case summaries, EAR / OAR-based approvals, and reflect compliance with published procurement policies
- Extensive project documentation exists in both electronic and hard copy format, and is readily available. The documentation includes: monthly progress and cost reports, EC and Steering Committee meeting minutes and BT Committee presentation material.
- Project Plans include knowledge transfer from consultants
- Procurement documentation is robust and all supporting documentation of approvals is embedded within the SAP procurement system and the purchasing files

eHealth Comparison

The Ontario Electronic Health Records Initiative failed because they let project sense of urgency override compliance with policy and process. Through advanced planning and scheduling, and with strong management and oversight of costs and schedules during project execution, Cornerstone maintained momentum, and delivered its results on time and under budget while achieving compliance with corporate policy and process.

Phase 2 Team Values

(Program Level Cornerstone Values)

The team values developed in Cornerstone Phase 1 remained in place for Phase 2. Cornerstone Project team members were committed to supporting our Hydro One values, our Hydro One Strategic Five Year Vision and were encouraged to demonstrate the Cornerstone Values to promote excellence and growth. Hydro One and Cornerstone values were posted in various areas of the project office.

Team Approach

We believe that a team approach is the best way to accomplish positive deliverables. This is how we show it:

- Collaborative working relationships
- Transparency in the way we manage information
- Badgeless teams
- Everyone owns the project and their team
- Our strength is the team, not the individual
- Shared decisions; Shared learnings
- We all contribute to making decisions; we accept decisions once made
- Our sponsors are there to help us; we are there to help them
- *The 3-legged stool concept. Hydro One is the seat supported by 3 legs – Accenture, SAP and Inergi / Cap Gemini, any one of the four parts is ineffective without the other 3*

Treat Each Other with Respect

We treat each other with respect. This is how we show it:

- Trust in the abilities and contributions of others
- Be respectful to each other at all times
- Be client focused, whether from outside or inside
- Adapt to changing circumstances and new ideas
- Team needs to be on same page – no question is a "dumb" one

Pride in our Work

We take pride in our work. This is how we show it:

- We accept responsibility for everything that we do
- We have a clear understanding of Individual and Team deliverables
- We always seek clarity, "uncertainty" needs to be eliminated
- We never just "show up"
- We focus on the job that needs to get done
- We focus on the issue, not the person
- We have fun because it is all a part of the experience

Managed Innovative Environment

We encourage and foster a Managed Innovative Environment

- If we aren't making mistakes, we aren't "pushing the envelope"
- Crawl, Walk, Run
- Build a solid & simple foundation, the "bells & whistles" are for future phases
- Learning is a continuous process and mistakes & errors are part of the process

Project Size & Complexity

Cornerstone Phase 2 was scoped and designed to deliver:

- Pay processing for 6 major employee groups
- Comprising ~7,000 employees and ~7,250 pensioners
- Comprehensive testing through the development and execution of ~32,000 test scripts, with
- 26 major phases of testing, followed by 3 dress rehearsals leading to cutover
- New financial system and processes to enable IFRS compliance, and to
- Provide the basis for parallel running of both GAPP and IFRS-based books starting in 2010
- Development of ~135 reports based on the new Business Intelligence software tools
- Training for roughly 3,000 employees, using ~60 trainers across the province

Project Milestones

A set of major milestones was established early in the Project and accepted / approved by the Board's Business Transformation Committee for the ongoing monitoring of progress. All of these milestones to date have been achieved.

All Major Milestones Achieved to Date

- Major Vendor Negotiations Complete – Jun 2008
- Initial SAP Development Environment Available – Jul 2008
- International Financial Reporting Standards (IFRS) direction on recommended accounting treatment impacting on the SAP Configuration – Aug 2008
- Full Resource Plan in place to meet Project deliverables and maintain the SAP solution post go-live – Sep 2008
- Business Process Design: 40% Complete (Finance); 80% Complete (HR/Pay) – Oct 2008
- Functional Designs: 75% Complete – Oct 2008
- Business Intelligence / Business Warehouse Value Realization – Oct 2008
- Configuration Rationales: 80% Complete – Nov 2008
- Forecast of Total Project Costs will not exceed Board Approved Amount ($183M) – Dec 2008
- Test Phase Strategy: Detailed Test & Conversion Plan Complete – Jan 2009
- Build SAP Configuration: Component Testing 70% Complete – Feb 2009
- Test Readiness: Test Activity Commenced – Mar 2009
- RICEFW Development 75% Complete – Apr 2009
- Training Materials, Test and Maintenance Plans: 70% of Training content complete; Training test and maintenance plans 80% complete – May 2009
- Detailed Business Readiness Plan – Jun 2009
- Configuration Completion: Final Preparation Completion – Jul 2009
- Go-Live – Aug 2009
- SAP System Acceptance – Oct 2009
- Project Closure Report – Nov 2009
- 2009 Project Costs not to exceed approved budget – Dec 2009 (currently on track)

Project Financials

Approval by the Board in May 2008 resulted in the release of $183 million to fund Phase 2 of the Cornerstone Program.

Board Approved $183M

Life-to-date costs to the end of October 2009 plus forecast-to-completion costs total $168M. This includes:

Final Project Cost Forecast is $168M

- $131M for the Phase 2 Core Project
- $24M for the BI Reporting sub-project
- $13M for the IFRS sub-project

~$15M of $30M

Only $15M of the Project's $30M contingency was required, and is comprised of:

- $3M more Hydro One labour charged to the Project than originally planned, to enable more

50% OF CONTINGENCY USED FOR ADDITIONAL SCOPE (E.G. TIME REPORTING), MORE EXTENSIVE TRAINING & POST-DEPLOYMENT SUPPORT

extensive training than was provided in Phase 1

- $5M additional external support for post deployment support (Accenture, Inergi) than originally planned
- $7M more external support for additional scope. Major scope additions include a Time Reporting System, designed to mitigate risks associated with the existing time reporting capabilities, and more BI Reporting than anticipated (Accenture $5M, Inergi $2M). Approvals were obtained through the authorities defined in the EAR / OAR

TRAINING HIGHLIGHTS

- The June 1 – July 31 training schedule presented a unique challenge in terms of delivering training partially during peak vacation season. Planning for training resources, schedule and logistics began 6 months ahead of time to minimize the impact on staff and staff vacations
- With Time Entry included, any employee who had computer access was potentially a target for training (with the exception of Customer Operations, who remained on E-time and did not require training); supervisors determined who would submit timesheets online
- Staff training needs were discussed with supervisors or LOB key points of contact during one on one meetings; this helped reduce the churn experienced in Phase 1 around who should take training
- 2,917 end users were targeted for classroom-based Cornerstone training
- Training schedulers accommodated thousands of rescheduling requests, sometimes more than once per person; this helped with overall attendance rates
- Training attendance statistics were provided to Receiving Directors daily and to Vice-Presidents weekly; "no-shows" were tracked and provided daily to Receiving Directors and weekly to Vice-Presidents; this also helped with overall attendance rates
- Post deployment training was successfully scheduled and delivered in areas such as E&CS (Financial Forecasting) and Business Intelligence
- UPerform simulations have been migrated to the SAP Production system to facilitate online context-sensitive help; Learning Environment and Sandbox have been refreshed with the latest configurations; training exercises are being refreshed to work in the new environment; training files have been migrated to the Business Architecture SharePoint site

Site	Rooms
Clegg Road	2
Atrium	4
Barrie	2
Baywood	1
Buchanan	1
Burlington	2
Dundas	1
Oshawa	1
Kingston	1
Marriott - Toronto	1
Merivale	1
Morrow Road	1
Mural	2
Nexient	3
Pickering	1
Richview	1
Sudbury	1
Thunder Bay	1
Timmins	1
Trinity	6
	34

Training Statistics

- By go-live, 2,618 employees were fully trained, or 90% of target (2,917) with more training planned after go-live; a total of 3,087 employees have been fully trained to the end of October
- Some employees took more than one course, resulting in a total planned delivery of 7,798 "people sessions" (people x courses); of this, 92% were completed as planned (7,199) before go-live; approximately 1,000 hours of training have been delivered post go-live
- Finance, HR/Pay, Investment Management, Time Entry, Business Intelligence Training Courses delivered – 76, including 5 online courses administered through HOLMS
- SAP Simulations – 388 (163 for Finance, 141 for HR/Pay, 76 for IM, 4 for Time Entry and 4 for Workflow)
- Job Aids Developed – 137
- 59 trainers, 6 week train-the-trainer session
- 34 training rooms in 20 sites around the province

Cutover to Go-Live

Multiple Cutovers, Trial Runs for Data Conversion

5 Consecutive Days Working around the Clock

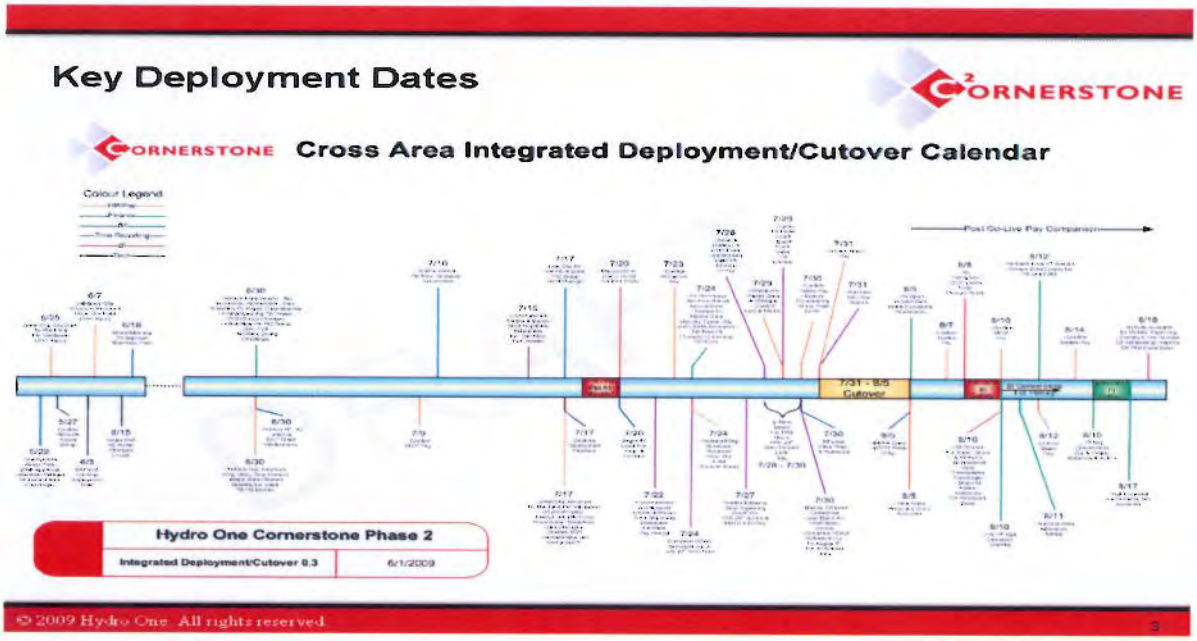
3 Dress Rehearsals

Incorporate Lessons Learned

3 Cutover Weekends, Designed to Minimize Day-to-Day Business Disruption

Highlights of the approach and methodology for the Project's cutover to Go-Live include:

- The multiple cutover approach of Phase 2 required that SAP be taken away from the business for 3 consecutive weekends. With the first cutover being the longest at 5 days X 24 hours
- Multiple mock trials for the data conversion routines allowed us to define the conversion dependencies but also assess the best case timeline, which aligned nicely with the multiple cutover approach
- The multiple cutover approach of Phase 2 was decided upon early, which allowed for sufficient time to define both the business process and the SAP/PeopleSoft functional and batch freeze dates. The associated freeze date impacts to the business were then defined
- Facilitation ensued to guide the impacted lines of business in defining manual processes to bridge the gaps during the multiple cutover periods
- Resource requirements to sustain the cutover activities were assessed and temporary resources were acquired to assist in cutover activities
- Two full dress rehearsals were conducted to test the cutover process and to assess the major risk areas - these were determined to be technical support, user authorizations, multi-team tracking, communication and sustaining 24 X 7 vigilance over an extended period of time
- A third mini-dress rehearsal was conducted to specifically target and improve upon the technical support and user authorization issues discovered during the first two dress rehearsals
- Lessons learned from dress rehearsals were documented and addressed prior to each successive dress rehearsal
- Project leadership was given clear instructions of the process, the challenges and known gaps. The gaps were addressed with changes in team structures, processes, and communications
- The longest and most complicated cutover ended August 5th with little deviation from the practice runs. Each cutover phase was managed in a way that minimized the impact on day-to-day business operations. All Phase 2 cutover activities were completed by August 17th, at which point the management of SAP support turned over to Post Deployment Management.



Post Deployment Management

Post Deployment Management represented the series of activities conducted in order to bring the business back to stability and minimize disruption associated with the Phase 2 roll-out. The Post Deployment team was active from August to October, and continued in this support role until formal handover of responsibilities from the Project to the Business Architecture Organization in late October 2009.

IMPLEMENTED EXTENSIVE AUTOMATED PROCESSES

Highlights of the Post Deployment Management initiative included planning, automated process development and management of:

- Issue logging and resolution
- Set up of Triage and Fix it teams to implement issue resolution
- Field support structure to assist them when go live (On-Site Support Teams located in war rooms in close proximity to affected users).
- Business stability metrics collection and monitoring
- Daily LOBs and executives opinion poles
- Daily Receiving Director conference calls
- Business acceptance criteria
- Communication with users prior and after go-live utilizing tools such as website, surveys, newsletters, on-site support training materials to name a few

ON-SITE SUPPORT STAFF LOCATED IN WAR ROOMS IN KEY USER AREAS

The combination of stability metrics, issue tracking and daily pulse checks/calls helped to identify hot spots early.

Primary risks of enterprise wide deployment were addressed prior to cutover and rehearsed:

READY FOR WORST CASE SCENARIO

- Ready for the worst case scenario (example: plans were developed for paying staff manually)
- Provided clear instructions to users of support structure and set expectations for active communications
- Mitigated bottlenecks or potential for swamping of support staff to the point where they were unable to function effectively
- Defined the reporting metrics to assist in decision support for project leadership

Highlights of the post Go-Live initiative Lessons Learned, as identified by project staff, were:

OVER 100 STAFF TO DEAL WITH ISSUES FROM AUGUST - OCTOBER

- The general feedback was that Phase 2 Post Deployment Management was successful.
- Activities that worked well as highlighted by respondents were:
  - Creating unique and automated issue reporting and resolution processes
  - Providing detailed documentation regarding issues logged in to allow knowledge transfer
  - Access to knowledgeable on-site support staff located in war rooms in close proximity to major concentrations of users after go-live
  - Communication and dissemination of information including user access to logged-in issue and pulse check statuses online
- Areas for future learning as indicated by respondents were:
  - Project Management must monitor use of on-site support and ensure that staff takes advantage of the expertise available.
  - Consider speeding up the issue resolution process after go live, especially for priority 2 and below issues; consider the balance between documentation of issues and faster resolution.
  - Consider reducing the number of status report meetings or optionally invite the resources working on fixing the issues.

Conclusion

- Early planning, starting in May, contributed to the successful delivery of Post Deployment Management
- Attention to corporate controls during project development was successful.

- Transparent and accessible information available to all staff was a key to success
- Lessons Learned from Phase 1 were successfully applied in Phase 2

Transition to Ongoing Sustainment

Business Architecture as Corporate Owner

Hydro One's Business Architecture organization (part of Business Information Technology) is the corporate owner for the SAP application. It is accountable for process and data management, and training and technical solutions related to the systems and processes implemented by the various phases of the Cornerstone program. This organization, in concert with sustainment groups in Inergi, also ensures that a smooth transition occurs from the Cornerstone project environment to everyday operations.

Knowledge Transfer to Hydro One and Inergi

The first step in the transition is the robust transfer of knowledge of the as built solution to Hydro One and Inergi. Detailed technical and support documentation was prepared by the project team and reviewed with staff in Hydro One and Inergi. Technical documentation captures the configuration and maintenance requirements of the SAP solution. Support documentation also includes business processes, forms, key inputs and outputs, etc.

LOB Readiness Scorecards

Next is the signoff of a series of acceptance criteria by each Line of Business (LOBs) and Business Architecture. This complements the LOB scorecards that were activated prior to go-live to assess the overall readiness of the organization for the new solution. The scorecards assessed readiness along 37 dimensions, including training, documentation, data accuracy and process ownership.

BIT's Business Architecture Acceptance Criteria

Business Architecture's Acceptance Criteria examine all aspects of delivery of the project, from planning to transition, in order to ensure that the systems, processes, data, documentation and supporting resources are ready for sustainment. These acceptance criteria include knowledge transfer and documentation, as well as confirmation of training status for staff, decommissioning of legacy applications, resolution of issues submitted after go-live and implementation of any temporary workarounds.

One area of focus in the transition was the disposition of all open System Investigation Reports (SIRs) raised by SAP users. Meetings were held by subject area and included Inergi to ensure that each open issue was directed to Inergi Sustainment or to Business Architecture for resolution

Sustainment Model Implemented: Business Process and Data Council, CAB and Stage-Gate Process

The transition to sustainment includes the reinstatement of previously established processes for identifying, submitting and prioritizing enhancements to systems and processes. During the Cornerstone Phase 2 Project, a special Change Control Board (CCB) assessed and approved (or not) any changes to the configuration of SAP to address any issues that arose after go-live. Changes to all other systems in Hydro One were frozen until the Phase 2 solution was stabilized and functioning as expected. The only exceptions were changes to other systems that were needed to enable the Phase 2 solution to stabilize and function as expected.

Upon commissioning, enhancements to SAP or business processes fall under the purview of the Business Process and Data Council (BPDC). The BPDC is a standing group of business representatives and Business Architecture staff with the mandate to review, prioritize, and approve changes to processes and data that affect the use of and / or configuration of SAP, its interfaces, or ancillary systems. The BPDC supports Business Architecture to carry out its mandate to optimize performance of SAP impacted business processes, drive continuous improvement, and maintain enterprise process & data governance.

Training Assets Transitioned to Business Architecture

Training assets include training manuals, simulations and job aids. The Cornerstone Phase 2 training repository has been transitioned to Business Architecture. Simulations have been migrated to the SAP Production environment to facilitate context-sensitive help. The Learning Environment and Sandbox have been refreshed with the latest configurations and training materials are being updated to reflect this.

COMMISSIONING COMPLETED OCT 23RD, 2009

As of October 23rd, the Cornerstone Phase 2 SAP solution was commissioned to sustainment. A broadcast message was sent to all staff, advising of this milestone and providing information about ongoing support options. These options are those that are already in place for other systems: Business Architecture, Help One, as well as telephone support from Pay Inquiries, Ask HR and Time Reporting Centres.

LESSONS LEARNED

Lessons Learned is the final step in Hydro One's structured approach to project and change management, and a major deliverable from an overall project management perspective. This step in the project closure process provides an opportunity for people involved in the planning and implementation of similar projects to reflect on what went well and what could have gone better in managing the project and change impacts. The primary purpose of these lessons learned is to provide future project teams and their team leads with ideas and suggestions, for their consideration, for planning and executing their projects. It should be noted that the following lessons learned do not necessarily apply to all teams / areas within the Cornerstone Phase 2 Project.

INTERVIEWS AND WORKSHOPS

Approach

Through small group meetings and one on one interviews, project team members provided their perspectives on one or more topics. These themes were then tabled in a workshop with senior project staff where they were discussed in detail and recommendations identified. A separate workshop was also held with Organizational Alignment team members.

RESULTS

Results

Overall, the project was perceived as being very successful. The Phase 2 SAP implementation went well and the deadline was met. A summary of results is provided below.

WHAT WORKED WELL:

Worked Well – Consider Replicating

Although all requirements of the project were successfully delivered, several areas were fairly universally cited as items that should be replicated on future projects. These included:

TECHNOLOGY

- **Technology Team**: The technology component was unanimously seen as very efficient and streamlined (i.e development, interface testing, creating of environments). The same team worked together in Phase 1, which ensured continuity and a smooth approach.

CUTOVER PLANNING AND EXECUTION

- **Cutover Planning & Execution**: Almost unanimously perceived as working well. Good contingency planning. Lessons learned from Phase 1 were applied, specifically around experienced and dedicated resources providing proactive planning and scheduling.

BUSINESS READINESS

- **Business Readiness (BRAT, Receiving Directors, Scorecards):** A multi-level approach was used to ensure Hydro One was ready for the Phase 2 transition. This included establishing a Business Readiness Assessment Team, who would provide independent validation and facilitation of preparations for go-live. Their assessment was a key element in the go-no go decision for go-live. Separately, Receiving Directors (a concept that Hydro One originated) were engaged, aware and active much earlier in Phase 2 than Phase One. These preparations were driven in large part by the benefit of early business ownership realized in Phase 1.

PROJECT GOVERNANCE

- **Project Governance (Board, Steering Committee, Sponsors):** The Board of Directors, through their Business Transformation Committee, and Senior Management were engaged in the project very early, and at regular intervals throughout the project. In many cases Senior Management provided hands-on support that included visits to the project office to discuss preparations with the teams. Senior Managers were also very active in ensuring that staff were

trained and ready for the transition.

THIRD PARTY VENDOR MANAGEMENT

- **Third Party Vendor Management – Single Point of Contact**: Multiple third party vendors were directly involved in providing aspects of the Phase 2 solution. A single point of contact in Hydro One provided information to and oversaw the activities of these third parties.

TRAINING DELIVERY

- **Training Delivery**: Earlier involvement of trainers in the project, combined with the requirement to embed business process information in training materials, helped improve the delivery and relevance of training for staff. Trainers also took the time to customize the content for each class, and worked outside the classroom to assist trainees with their questions. Trainee feedback was universally positive.

TESTING (APT, REGRESSION, PAYROLL)

- In addition to the test objectives, testing represents a significant training opportunity. Project plans should be adjusted, when possible, to allow the staff targeted to run the processes in sustainment the opportunity to participate in the testing.

- **Testing (APT, Regression, Payroll):** Three of the scheduled test cycles were deemed highly successful – testing of the individual modules of the SAP application (APT), testing of the impact of Phase 2 on Phase 1 functionality (Regression), and parallel testing of SAP Payroll against runs generated by PeopleSoft (Payroll). In all cases, Hydro One and Inergi staff expert in the affected functions were intimately involved in customizing the test plans and executing the test cycles.

PRODUCT MATURITY

- **Product Maturity**: Overall the SAP product was perceived as a standard, stable and mature product for most functions. Generally, the more mature the product, the greater the likelihood of a smooth implementation, partially because there will simply be more experience working with it.

POST DEPLOYMENT MANAGEMENT

- **Post Deployment Management**: This team applied the lessons learned from Phase 1 by providing more accessibility and visibility into status, including online reporting of key business metrics and status of issues, as well as daily briefings with key business contacts (Receiving Directors). They also anticipated potential problem areas and mobilized in advance any SWAT teams that might be needed.

PROJECT FACILITIES/ SUPPORT

- **Project Facilities/Support**: Respondents thought they were very good, the building the work space, even if small at times. However, parking was a challenge due to the number of staff.

LEARNINGS:

Opportunities for Learning – Special Care and Attention Needed

There are unique challenges in any large project involving a large number of resources, multiple companies and many internal and external stakeholders. Phase 1 Lessons Learned also cited many of the areas below as requiring special care and attention:

MULTI-COMPANY TEAMS

- **Multi-Company Teams:** It's always a challenge to ensure multi-company teams work smoothly.

Recommendations

- Recognize that each party has different objectives, but be clear about whose objectives take precedence, recognizing that the final decision rests with the client
- Recognize that each project team will be different; adjust the model as needed

- Understand the restrictions/limitations of any commercial working relationship up front and how issues will be resolved
- Create a collaborative environment at leadership level, and proactively make sure it is emulated down at all levels
- Develop an overall workplan with all requirements/constraints on each company involved, including requirements outside the project

RESOURCING

- **Resourcing:** Cornerstone Phase 2 at its peak saw over 300 Hydro One, Accenture and Inergi staff onsite at Mural Street, including trainers and testers. Mobilizing this workforce presents challenges for any company, and particularly for one whose base work program of asset sustainment and development is increasing exponentially. Very early visibility into resourcing requirements was provided to senior management in Phase 2, as a lesson learned from Phase 1.

Recommendations:

- Recognize company lead times for staffing and ensure conversations occur not only with senior management but with affected line managers
- Suggest an appropriate split of 60-40 or 65-35 for the client vs. any consulting resources
- Solution architect is a critical role; regardless of whether the integrator staffs this position, Hydro One should also ensure someone from Hydro One is also assigned this role
- Prime vacation season was a challenge; consider project timing
- Look at preceding, similar projects and assess whether continuity of resourcing from one project to the next would be beneficial
- Consider keeping functional teams together for the full project, rather than breaking them apart at each stage
- Ensure all Project and Team Leads are experienced in the functional area, knowledgeable and senior level people, as was the case with Phase 2
- Consciously consider whether part-time resources will help or hurt; decline using these where appropriate
- Ensure staff roll-offs coincide with completion of issue resolution and that business knowledge transfer is imparted

AUTHORIZATIONS/ SECURITY

- **Authorizations/Security:** There was a disconnect between the business' understanding of "roles" as SAP defines them and what the business needs its users to be able to do. Roles from PeopleSoft did not translate well to SAP.

Recommendations:

- Ownership needs to be defined and a decision made around going to a role based authorization approach – we are not staffed and structured that way
- Business, applications and authorizations people need to work more closely together; consider embedding Authorization resources within functional teams
- It is important to ensure that LOB leads understand the importance of role design to their business and the control framework, and that they are actively engaged in the design process on an upfront basis. Users must be required to test roles prior to go live
- Although we recognized that authorizations was going to be a problem area and we mobilized to be ready, we are still seeing longer than expected times to resolve issues and have had to add more resources; consider other methods for identifying and planning for these types of contingencies
- A key lesson learned from Phase 1 is that corporate controls need to be identified early in the design phase of the project and then managed throughout all subsequent phases. The value in taking this approach in Phase 2 was demonstrated by the robustness of the controls at go-live

THE IAM TEAM WAS ESTABLISHED AND DEALT WITH THE ROLE AND AUDIT REQUIREMENTS

TESTING

- **Testing:** The project relied on Accenture to set the benchmark for the depth and completeness of testing for this type of implementation. While some test cycles (application

testing, regression testing, parallel payroll testing) were deemed highly successful, integration testing was not.

Recommendations:

- Ensure test scenarios reflect end to end business processes, not just functional requirements
- Testing should ideally be done by staff with significant experience and business knowledge in those functions
- Cross-functional testing and end to end process/integration testing (including 3rd parties) are critical to the success of the project and must be allocated sufficient priority and time
- Testers must have the same authorizations as end-users will have after go-live
- Need reliable ways of determining how much testing is enough; benchmarks (cycles, conditions) based on other implementations, etc.; also need to understand up front what testing can be done concurrently and what needs to be sequenced and the risks in each
- Although Accenture provided a benchmark level of testing, Hydro One management significantly exceeded this benchmark level of testing. The successful outcome of the project justified that level of time and dollars as a risk mitigation investment

ORG ALIGNMENT / TRAINING / COMMUNICATIONS

- **Org Alignment/Training/Communications:** Although preparing staff for the transition is universally recognized as critical to success, there are many models and views on how best to prepare staff and the priority those preparations should take relative to other project deliverables.

Recommendations

- Consider embedding OA resources for training, communications and authorizations in functional teams
- Ensure that OA resources have clear mandates, tasks and accountabilities supported by leadership, including access to functional experts on a regular, prescribed basis
- Include OA tasks and accountabilities in the deliverables of the functional teams
- Whether OA resources are embedded or separate, ensure there is one senior project team member responsible for ensuring that all "people" requirements are identified, recognized and met
- Ensure that the approach and plans for communications are agreed to by all project and team leads and are consistent with expectations of project sponsors and stakeholders
- Establish an appropriate level and method of internal project communications; project staff need regular updates and opportunities for cross-functional discussions

ROLE OF THE INTEGRATOR / INTEGRATOR METHODOLOGY

- **Role of the Integrator/Integrator Methodology**: An integrator is brought into a complex project because of their success in other engagements and because of a proven methodology for implementation. However, the lessons in this area point to a need for more collaboration and more visibility/understanding of the methodology at earlier stages of the project. This was also explored in Phase 1, with Phase 2 including earlier discussions on methodology through an "expeditor" and inclusion of requirements around earlier visibility into plans and deliverables in final contracts.

Recommendations:

- Any methodology will have strengths & weaknesses; any methodology will have elements that work and don't work in a given project; need the ability to recognize weaknesses or poor fit when found & adjust quickly; define how this will be handled up front
- Need to find the right balance of integrator authority and client authority around the methodology; also need to consider how best and how fast to empower the client
- Consider how best to provide context and visibility into overall project plan to all teams
- Consider how best to ensure that best practices and learnings from other projects are proactively available to each team

- Conscious effort to integrate technology, process, OA, etc in regular meetings and updates, however consider demands on time, especially for Leads
- Although the Integrator's role is significant, ultimate accountability for success or failure of the project remains with Hydro One

THIRD PARTY VENDORS

- **3rd Party Vendors:** Although a single point of contact for all third party vendors was invaluable, there was some difficulty getting commitment from some vendors for what was required of them.

  Recommendations:
  - 3rd parties have their own priorities, contractual commitments and processes; ensure we take these into account
  - Consider having a single point of contact from each vendor and whether they could be directly involved in project activities that affect them (attend meetings onsite, etc.)
  - Ensure appropriate visibility into the preparations by each vendor
  - Establish a clear process for escalating issues involving third parties

PROJECT RECORDS

PM RECORDS ARCHIVED

Project Management records (plans, schedules, status reports, financials, legal / contractual documents) are stored in secure Hydro One PMO cabinets and available through the PMO staff.

PROJECT DELIVERABLES TRANSFERRED TO BUSINESS ARCHITECTURE ORG

The electronic versions of Project deliverables were backed up at the end of October 2009 and copies provided to Hydro One and Inergi. A final copy of deliverables will be created when IFRS Wave B is completed in 2010.

PROJECT CLOSURE APPROVAL

HANDOVER FROM PROJECT TO BUSINESS ARCHITECTURE OF CORE DELIVERABLES WILL BE ACHIEVED ON NOV 17, 2009

The proposed handover process, timing and related Project deliverables were reviewed by the Business Architecture organization and Inergi.

Since the beneficiaries of the Phase 2 deliverables include all Hydro One Lines of Business, the Business Architecture organization will have formally accepted the Project deliverables on their behalf when this Project Closure document is approved.

From November 2009 until Q1 2010, a subset of the original Project team will carry on to complete the 2nd "wave" of IFRS compliance changes, high-priority BI reports and support the HR / Pay function

NEXT STEPS

REFLECT GOVERNANCE & PROJECT MANAGEMENT APPROACH IN FUTURE PROJECTS

1. **Ensure "Cornerstone" Governance and Project Management approach / model is reflected in future projects.**

   Action: Carmine Marcello

   Corporate Projects existing mandate includes working with priority projects (e.g. Smart Grid) to help establish the project Governance and the Project Management Office. The Project Management Office, under the guidance of Corporate Projects, will then implement established processes for procurement and contract management, project cost and schedule monitoring / reporting and issue / risk management.

DISPOSITION DETAILED LESSONS-LEARNED

2. **Review and disposition detailed recommendations contained in lessons learned section of the report.**

   Action: Verne Webber

   Will review and ensure all recommendations resulting from the lessons learned exercise are given consideration for 1) sharing with in flight project leaders for such projects as smart metering, 2) documenting the recommendations as requirements for future similar initiatives.

FORMALLY TRACK PHASE 1 & PHASE 2 VALUE REALIZATION BENEFITS

3. **Phase 1 and Phase 2 Value Realization benefits need to be formally tracked and regularly reported.**

   Action: Carmine Marcello

   Early indicators of the value to be realized as a result of the Cornerstone initiative are positive and include the saving associated with our procurement approach for 750 auto transformers, establishing "green field" stations like Burlington versus retrofit and rebuild and a significant reduction of errors associated with time reporting. For 2010 a formal tracking and monitoring program utilizing a base year comparator will be implemented company wide to help ensure the committed benefits are being obtained on an ongoing basis. Accountability accepted by Asset Management SVP.

Hydro One Inc.
Submission to the Human Resources and
Public Policy Committee of the Board of Directors

Date: August 11, 2009

Subject: Staffing Strategy Update

Submitted by:

Tom Goldie
Senior Vice President, Corporate Services

REASON FOR REPORT

This report is submitted to the Human Resources and Public Policy Committee for its information. It is a more in-depth follow-up to the Business Plan discussion at the May, 2009 Board meeting dealing specifically with the resourcing component of the plan.

This item relates to the "*Attract and Retain Top Talent for Key Positions*" and the "*Recruitment*" sections of the approved Human Resources Strategy found on pages 1 and 2 respectively in the document.

KEY HIGHLIGHTS

- The demand for labour at Hydro One continues to grow annually in all employee groups - Management, Society-represented and PWU-represented, in spite of the economic downturn.
- Hydro One has safeguards in place to ensure it does not over hire regular employees.

August 11, 2009

HYDRO ONE STAFFING STRATEGY

At the June 2009 Board Meeting, the 2010 to 2014 Hydro One Business Plan was discussed in detail. The Board continues to be concerned over the Hydro One Staffing Strategy. Specifically, there seems to be a continuing concern that the combination of lower that anticipated retirement rates, the impacts of the economic downturn, and the potentially short term nature of the employment requirements of the Green Energy Act will leave Hydro One in a situation where it will over-hire relative to the longer term work program.

Management is convinced the present resourcing strategy is the proper one and it is essential given the various factors facing the Company over the business planning period and beyond. Furthermore, it is convinced that over-hiring will not occur. Management has a number of mechanisms in place to ensure that the workforce continues to be properly sized for the work program well beyond the business planning period.

This subject has been a topic of discussion at most HR&PP meetings. It has been addressed formally through a series of HR&PP Board Memos, the most recent one in November, 2008. A copy of the bulk of that memo is included as Attachment 1. It provides significant detail with respect to both the demand and supply of labour over the business planning period and beyond.

These factors are well-documented. However, the Committee's concerns seem to be focused on two specific issues:

- the lower than anticipated rate of retirements;
- the flexibility of the work force, and management's ability to make significant resource adjustments with minimal cost and administration.

These two issues will be dealt with in turn, and an additional control mechanism will be identified.

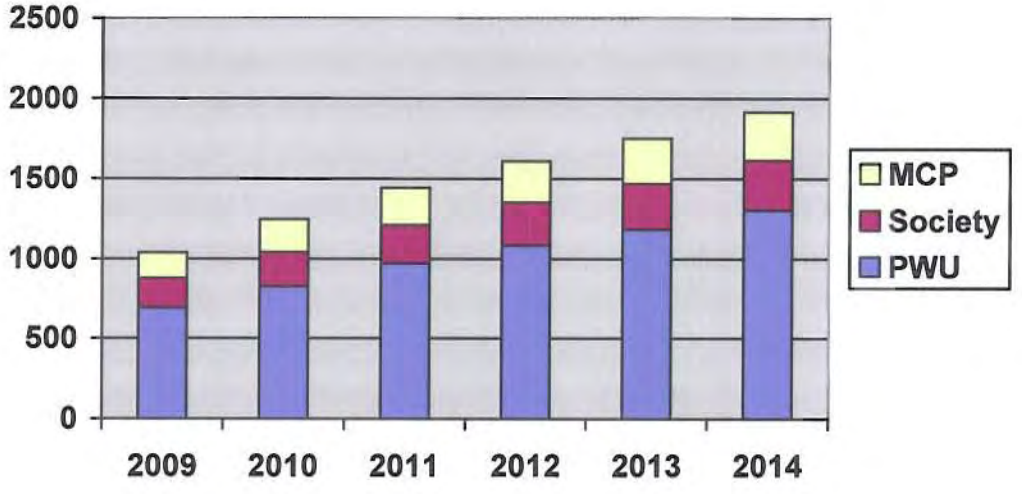
Retirements:

As noted above, retirement rates have been dealt with on previous occasions at HR&PP Committee meetings. Rather than repeat the materials presented by management, this

memo will provide more specific detail on key classifications in the Company and on the severity and probability of this risk.

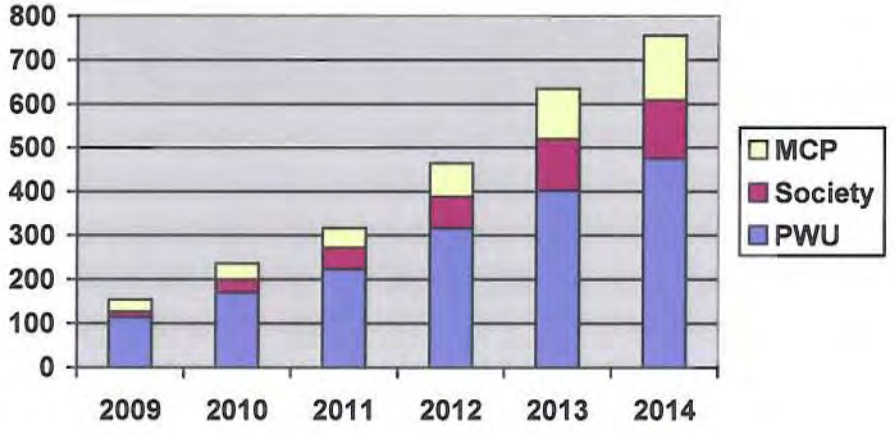
On a macro level, the Company still faces a significant liability with respect to potential retirements. The Committee expressed interest in a breakdown on pension eligibility based on both the rule of 82, and 35 years of pensionable service. This breakdown has been provided by jurisdiction in Figures 1 and 2 below:

Figure 1: Cumulative Retirements by Jurisdiction; Rule of 82; 2009 to 2014



In 2014, 1,914 total of 5,035 regular employees (38%)

Figure 2: Cumulative Retirements by Jurisdiction; 35 Years of Service; 2009 to 2014



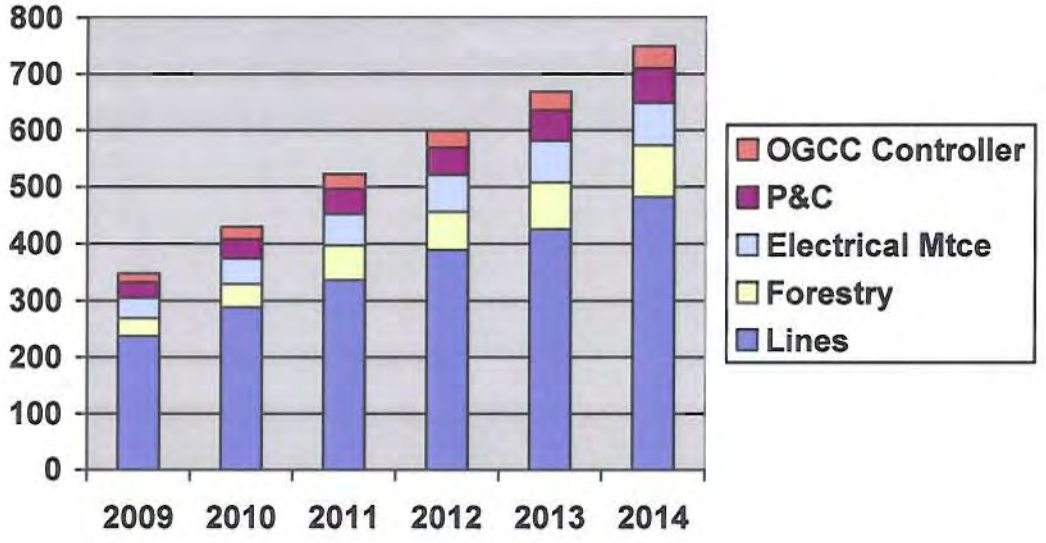
In 2014, 756 total of 5,035 regular employees (15%)

However, this liability becomes clearer when specific classifications are examined in detail. There are five key trade groups in the Company, in terms of size and importance to the work program. They are:

- Line maintainers and associated classifications;
- Electrical maintainers and associated classifications;
- Protection and Control staff;
- Controllers at OGCC;
- Foresters and associated classifications.

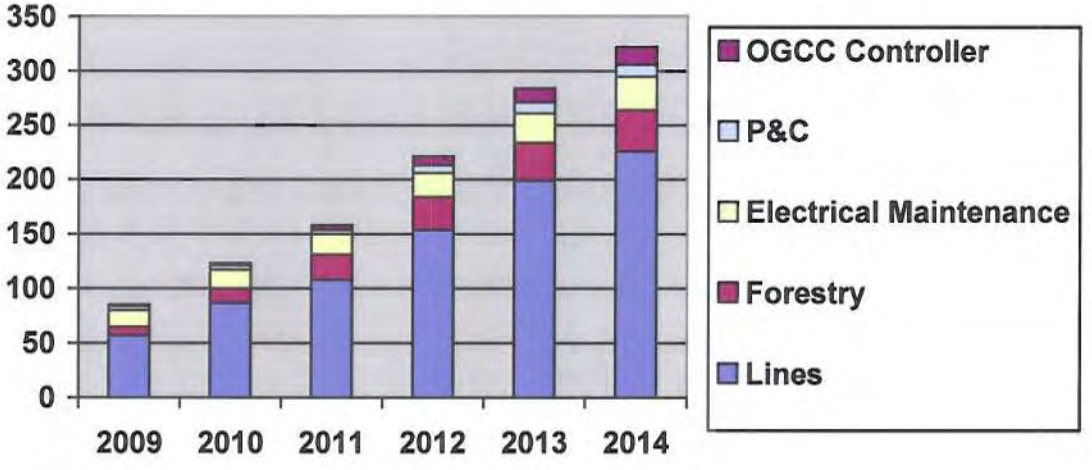
There are other key classifications as well, such as IT; however, these five groups make up 33% of the Hydro One regular workforce, and are essential to completing the work program. Figures 3 and 4 help identify Hydro One's risk in each of these classifications, in terms of their eligibility to retire with undiscounted pensions over the next five years, and their eligibility to retire with 35 years of service over the next five years. These figures confirm the risk is real, and we have a potential high liability facing the Company. These staff will retire and we must be prepared for this eventuality. It takes four to six years to develop candidates for these key positions in the Company, and we must continue with our hiring efforts to ensure a smooth transition of graduates, trainees and apprentices into these key roles in the Company.

Figure 3: PWU Cumulative Retirement By Eligibility; Rule of 82; 2009 to 2014



In 2014, 749 total of 1,635 employees (45%)

Figure 4: PWU Cumulative Retirement By Eligibility; 35 years of Service; 2009 to 2014



In 2014, 322 total of 1,635 employees (20%)

Workforce Flexibility:

The longer the lead time required to develop staff (between four and six years for most of our skilled positions), the greater the chance that factors will intervene and alter the

staffing plans. Hydro One management is well aware of this possibility, and mitigates the risk by utilizing significant numbers of non-regular staff.

Non-regular staff are beneficial since they are a contingent work force, with no cost incurred when they are not utilized. At the present time, non-regular staff comprise 40% of the workforce at Hydro One. Therefore, even if factors intervened which forced a 40% reduction in the work force, Hydro One could:

- absorb this reduction without impacting on regular staff numbers;
- reduce the work force quickly without incurring any cost.

This flexibility is important both from a cost and skill retention perspective.

Hydro One's flexible workforce is multi-layered and specifically constructed to accommodate shifts in the work program. A summary of the workforce is shown in the following table.

Table 1
Hydro One Workforce Composition

The various classifications within the Hydro One workforce are shown below, along with their associated FTEs, and the level of difficulty and costs associated with reducing the workforce through means other that attrition.

Classification	FTE's[1]	Ease/Cost of Reduction
Regular Staff	[redacted]	Long lead times/High cost of severance
Overtime Hours [2]	[redacted]	Immediate reduction/No cost
Hiring Hall (excluding apprentices)	[redacted]	Immediate reduction/No cost
Apprentices in Hiring Hall	[redacted]	Immediate reduction/No cost
Casual Construction	[redacted]	Immediate reduction/No cost
Temporary	[redacted]	Short lead times/No cost
Co-op	[redacted]	Less that 4 months/No cost
Summer Student	[redacted]	Less that 4 months/No cost
TOTAL FTE'S	[redacted]	
Flexible workforce as a percentage of total workforce	42%	

[1] As of June 1, 2009 for all FTEs except overtime, which was based on year end 2008 to include the impact of a 12 month actual period

[2] 1,062,037 hours of overtime were worked in 2008

Assuming all 5,035 regular staff did not retire or leave, the Company could withstand an immediate 40% reduction in the work program, with virtually no costs incurred in terms of severance or process before regular staff would be impacted. These staff reductions would take place without incurring any severance costs.

There are very few companies in Canada, especially those dependent upon a highly skilled, technical workforce, who have this level of staffing flexibility.

Matching Hiring and Turnover:
Hydro One has also established a monitoring process to ensure that external hires match the attrition levels in the Company. As part of the Business Planning process, each unit must identify its planned attrition over the business planning period. Where possible, attrition by name is identified. This allows the tracking of staff levels on a continuous basis to ensure that levels are decreasing by the appropriate numbers over time to accommodate staff who are hired as replacements for future attrition. For example, this will prevent a situation where an employee is hired in anticipation of another employee retiring in 3 years, and then replacing the retiring employee again when he/she actually leaves in three years.

Hydro One is very confident in its staffing strategy, and believes its flexible resourcing plan will ensure over hiring does not occur.

Attachment 1

The Demand and Supply of Hydro One Labour
As Discussed in the November 2008 Board Memo

Demand for Labour:

We are confident that our major work programs will continue during the economic downturn. The growing demand for electricity will continue long term, even if it dips in the short term. In addition, transmission projects have long lead time projects. There is also a sense that the government looks upon Hydro One as an economic engine to keep the economy going.

The Business Plan outlined the need for labour over the time period 2004 to 2013 based on the Networks work program. This is identified in Attachment 1. The growth in total staff between 2004 and 2013 is 1,946 employees. Part of this has already been dealt with. The future growth between 2008 and 2013 will be **540** regular employees. This is an average growth of 108 **net** employees per year over the planning period. This net growth is driven by significant increases in the work program over the planning period; an increase in total spend of **$600M** between 2008 and 2013 (from **$7,400M** to **$8,000M**).

Supply of Labour:

It is important to note the increased labour demand shown above is the **net** increase over the planning period. Given the demographics of the Company, the gross hiring required to achieve this net increase is significantly larger. Over the planning period, 40% of the regular workforce, 1,940 employees, qualify for an undiscounted pension. Not all employees retire when they reach this milestone. Field staff, who are generally hired at a younger age, tend to remain with the Company until they achieve 35 years of service; this is usually 3 to 5 years after they become eligible for an undiscounted pension. Based on history, we conservatively estimate that 25% of the workforce will retire when they qualify for an undiscounted pension. Assuming this pattern continues into the future, we will have to hire a minimum additional 485 employees to maintain the workforce at the level required by the business plan.

Management's view is that the economic downturn will have less impact on retirements in our Company than in others. Most if not all of our employees have defined benefit

pension plans which are "recession resistant". Many of them, especially trades staff, do not depend heavily on personal investments in retirement so they are likely to retire as they had planned before the downturn occurred.

The timing of retirements is also a factor in terms of recruitment. We are anticipating three retirement spikes over the next 15 years; 2013, 2016 and 2021. In each of these three years, we anticipate the retirements of regular staff will be between 200 and 300 employees. We must look longer term at retirement rates given the nature of the workforce. The electricity sector has one of the highest proportions of the work force with post secondary educations; 76% of our employees fall into that category. This is critical for a number of reasons:

- Although employees, particularly engineers and technicians/technologists, are spending more time in school, they are coming to us less prepared for full-time employment than they did in the past. This is a result of universities and colleges not providing the in-depth technical education which they provided in the past; nor is the teaching industry specific. A significant contributor to this problem is the fact that electricity sector companies such as Hydro One stopped hiring from universities and colleges. Other industries, such as high tech, started hiring, and the universities redirected their resources to academics in these areas. As power engineering professors retired, they were not replaced. The universities have to rebuild their capacity, and this will take time.
- These new employees require significant additional training which is provided in-house, thus creating a gap between the time they are hired, and when they are ready to take on a regular position in the Company. This is why the grad program for engineers and the in-house technician/technologist programs were created. These are minimum two year programs to appropriately develop new hires to fill our vacancies. During these periods of time employees spend an increasingly greater percentage of time performing productive work. The Company's approach to development is that most takes place on the job rather than in the classroom. However, even when employees have completed the formal program, it is another year or two before they are fully functional in an ongoing role. This is similar to a residency program in a hospital.
- In the case of trades staff, the post secondary education is provided by Hydro One in-house through our apprenticeship programs. For most of our key trades staff, i.e. line maintainers, foresters, electrical and mechanical maintainers, there is a four year in-house apprenticeship, and another two year working requirement before they are

ready to step into a trades position as fully qualified journeypersons. During their development, they are becoming increasingly productive, but there is a long lead time given the high technical content of their positions. This is reflected by the rule of thumb when budgeting for apprentices that they are viewed as 25% productive their first year, 50% productive in their second, 75% productive in their third, and 100% productive in their fourth.

These long lead times are not found in many other industries. We cannot simply hire staff, provide them with an orientation, and then put them to work. In the case of engineers, those hired in the spring of 2009 are being developed to be fully qualified for positions which will be available in 2013. In the case of line maintainers, any who are hired in 2009 are being developed to be fully qualified for positions which will materialize in 2015.

If we do not hire these staff at the present time, we will not have the resources required in future years. The reason the Company had resourcing issues over the past few years is a direct result of the hiring freezes and voluntary staff reduction programs which originated in 1983 and have been reinstituted off and on since then. An outcome of this approach to staffing is the fact that in 2009, more employees will reach the 35 year plateau than will reach the 25 year plateau. This is unheard of in most companies. However, in 1983/1984 there was a voluntary reduction program to reduce the number of staff (mainly senior retirement eligible staff), and not replace them once they left. This created a large hole in the demographics of the Company, and we are paying the price.

The skilled labour market will continue to tighten over the next few years, and it is important we get the appropriate resources in place now to be able to meet the future work program needs. In spite of the economic downturn, the demand for skilled labour is growing in many industries across the country, particularly in spots such as Newfoundland (where a number of the Alberta workers have immigrated from), and Saskatchewan. These locations will be very competitive for employees when talent is freed up. In addition, our workers are both highly skilled and specialized, and the freeing up of labour in other provinces may help fill the gap, but many of them will have to be re-skilled, which will be a major undertaking

Therefore, we realize our existing internal labour supply will dwindle over the planning period, and the ready availability of skilled labour will also dwindle over the same time

period. The only viable alternative is to hire high potential but relatively unskilled resources with enough lead time to be able to provide them with the skills and knowledge necessary to step into jobs when the opportunity arises.

There is no question that the gap is so great in certain areas that even if the economic downturn becomes more severe, and the demand for labour slows considerably, it will only provide the industry with a bit of breathing space. The Labour Market Information (LMI) study conducted by the Electricity Sector Council (ESC) in 2008 confirms this fact. It shows that over the last four years, even with a concerted effort by utilities across Canada, the gap between labour demand and labour supply **widened** over the four year period.

It is also important to realize the numbers in the LMI study did not factor in the labour requirements associated with the proposed nuclear build in three provinces. If even a fraction of this work goes ahead, the numbers shown in the report will seem small.

Without the economic downturn, there was no chance of closing the gap. With the downturn, there is at least an outside chance across the industry. Hydro One, and a handful of other utilities, are in good shape given we established our staffing strategies a number of years ago. Most companies in the industry are not as well positioned.

Mitigating Factors:

The longer the lead time required to develop staff (i.e. between four and six years for most skilled positions in Hydro One), the greater the chance that factors will intervene and alter the staffing plans. Hydro One management is well aware of this possibility, and mitigates the risk by utilizing significant numbers of temporary staff, particularly the hiring hall.

Temporary/hiring hall staff is beneficial since they are a contingent work force, with no cost incurred when the staff are not utilized. At the present time, temporary staff comprise 30% of the trades workforce at Hydro One. Therefore, even if factors intervened which forced a 30% reduction in the work force, Hydro One could absorb this reduction without impacting on regular staff numbers. This is important both from a cost and skill perspective.

January 06, 2010

John Hawes
Hydro One
1600 Lower Base Line Road
East RR#2
Hornby, ON L0P 1E0

Dear John,

Congratulations to you and Hydro One on your successful rating under the E3 Fleet Rating System.

As is shown in the detailed Auditor Rating Checklist enclosed, your fleet has been rated at the Gold level. This rating demonstrates the outstanding work being done to improve the environmental and economic performance of your fleet. There are a number of exceptional areas, which have been documented by the E3 Fleet Auditor Ken Fryer. In particular, it is clear in your ongoing initiatives that safety and environment both have strong emphasis in your fleet and excellent management is evident. Although your overall emissions increased due to an increase in both fleet size and distance travelled, your overall GHG intensity and median fuel efficiency both improved.

We hope this rating will attract the attention of other fleets across Canada, and we encourage you to continue to demonstrate leadership in fleet management excellence. We look forward to working with you to communicate the results of your rating.

If you have any questions, please do not hesitate to contact me at (604-488-5369).

Sincerely,

Charlotte Argue
E3 Fleet Program
Fraser Basin Council

Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
1.0	**Fleet Action Plan**					
1.1	Fuel and GHG Emissions Baseline	Required 3	- Complete Fleet Review LEVEL I or fuel efficiency by category & emissions performance report *NOTE:* Minimum 12 month period, reporting period can not pre-date 2000 calendar year	Y	3	
	Auditor's Notes: Fuel and GHG baseline reports for 2007 and 2008 provided through complete Fleet Review reports.					
1.2	Green Fleet Action Plan	Required 5	- Complete plan including all aspects as outlined in Green Fleet Action Plan Standard Step 3.0.	Y	5	
	Auditor's Notes: All of the requirements have been satisfied in a Green Fleet Action Plan identified as the Hydro One Environmental Plan that has been approved by the board of directors (2007). Proposed Greener Choices for 2010 - 2012 Work plans focus on Facilities, employees and fleet operations. New initiatives proposed for the future.					
1.3	Sr. Management / Council / Ownership Formal Adoption	Required 1	- Formal letter of support, approval or adoption of Plan at formal council session, AGM, sr. management meeting, etc.	Y	1	
	Auditor's Notes: Approved plan from Hydro One president issued Jan. 2008 identifying 2008 initiatives. The Corporate documents focus on a 5 year plan (secton 5) identifies specific GHG reductions to be met by fleet operations;.specific applications.					
1.4	Communication of Plan	Optional 1	- Press release, website presence, employee launch party or other public event.	Y	1	
	Auditor's Notes: The Hydro One Fleet Services has demonstrated an aggressive approach of informing staff and the public through presentations, internal information updates on greening initiatives. Hydro One has company wide events supporting their sustainablity plan that includes reductions of GHG emissions. Media releases, pamplets and posters that demonstrate a sound Green Fleet Implimentation Plan.					

Total Required Points 9
Total Optional Points 1

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
2.0	**Training & Awareness**					
2.1	Corporate Fuel Efficiency Policy Orientation Training	Required 1	- Orientation training syllabus AND Orientation training roster for new employees NOTE: Employees are professional drivers, equipment operators, or any employee operating corporate vehicles	Y	1	
	Auditor's Notes: All new employees are required to take e-learning driver training on-line. Those who drive more than 5000 km per year are required to attend a class and prove their driving skills through defensive driving, specific to the class of vehicle being driven. In this plan the focus is to support Hydro One with reduced fuel consumption through awareness and training. Driver Improvement Courses are mandatory for every employee.					
2.2	Driver Awareness Program (Fuel Efficient Driving Techniques)	Required 3	- proof of at least three (3) awareness activities from the Strategies list	Y	3	
	Auditor's Notes: Training & Awareness is demonstrated during orientation, annual performance reviews, internal incentive programs and monthly meetings.					

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Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Points Awarded	System Messages
2.3	Driver Training Program (Fuel Efficient Driving Techniques)	Optional 5	- List of personnel to undergo training, Driver / Operator training syllabus and materials, training rosters	Y	5	
	Auditor's Notes: The driver training program is primarily focused on continuous driver improvement. A comprehensive on-road hazard avoidance, defensive driver training program is in place.					
2.4	Fleet Management Training Program	Optional 3	- List of management personnel to undergo training, training syllabus and materials, training rosters	Y	3	
	Auditor's Notes: Hydro One's comprehensive corporate training programs satisfies all the requirements.					
2.5	On-going Driver Training Program	Optional 1	- List of personnel to undergo training, Driver / Operator training syllabus and materials, training rosters	Y	1	
	Auditor's Notes: Hydro One's comprehensive corporate training programs satisfies all the requirements.					
2.6	Driver Incentive / Reward Program	Optional 1	- List of participating personnel, Incentive / Reward Program details and literature, proof of program in action	Y	1	
	Auditor's Notes: Driver Incentive / Reward Program is evident with a reward system in place to acknowledge staff for their involvement in a recent tire program. Staff were awarded a shirt and tire gauge.					
2.7	Innovation Points	Optional 1	*NOTE:* Program or initiative must demonstrate fuel / emission improvements	N		
	Auditor's Notes: Could not demonstrate anything in this category.					

Total Required Points 4
Total Optional Points 11

3.0 Idling Reduction

3.1	Idling Cost Evaluation	Required 1	- Demonstrate actual or estimate unnecessary idling and calculate costs savings potential	Y	1	
	Auditor's Notes: The method used to calculate idling is based ARI/Webtech data baselines. A sample of 400 vehicle using telematics and GPS are selected. Exception reports indicate a full analysis of vehicles that need to be improved. Month over month comparisons of the exceptions and remedial action is taken.					
3.2	Corporate Idling Reduction Policy	Required 3	- Clear policy indicating conditions under which idling is permitted and when it is not accepted or permitted.	Y	3	
	Auditor's Notes: An anti-idling policy (HODS) that is connected through intranet allows for access to Anti-idling proceedures that have been made available to all staff within the organization. Specific applications are identified that allow for idling in specific conditions. Ongoing management is required to ensure continued success.					

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Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
3.3	Idling Awareness Program	Required 3	- Idling program awareness materials, evidence of an awareness program in the workplace (i.e. posters, newsletters, etc.)	Y	3	
	Auditor's Notes: Continuous awareness is evident throughout the organization.					
3.4	Driver Idling Incentive Program	Optional 3	- List of personnel to undergo idling training, idling training syllabus, materials, handouts, etc., training rosters (i.e. personnel who have attended)	N		
	Auditor's Notes: An ongoing training program is being developed to be monitored continuously.					
3.5	Corporate Idling Reporting	Optional 3	- Sample reports or other means of communications (newsletters, posters, internet/intranet, etc.)	Y	3	
	Auditor's Notes: Meets minimum requirements for this section.					
3.6	Innovation in Idling Reduction	Optional 1	- Proof of performance and implementation	Y	1	
	Auditor's Notes: Based on efforts in this category, Hydro One has been promoting Idle reduction though improving lighting on all of their vehicles allowing for prolonged periods to shut down vehicles. In addition, aerial manlifts with remote start from the bucket, allowing the chassis to be shut down when manlift movement is not required.					

Total Required Points 7

Total Optional Points 7

4.0 Vehicle Purchasing

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
4.1	Vehicle Purchasing Policy & Procedure	Required 5	- Policies, commitments, contracts, etc. that demonstrates a purchasing strategy is in place, AND listing of appropriate recent acquisitions	Y	5	
	Auditor's Notes: The Enviromental Administrative Instruction - "buy green" policy defines all replacement vehicles to be energy efficient.					
4.2	Functional & Operational Analysis	Optional 3	- Hardcopy of the procedure or worksheet and evidence of the process working (i.e. functional and operational analysis forms for new vehicle acquisitions).	Y	3	
	Auditor's Notes: Internal working committee supports functional and operational analysis when purchasing all vehicles. This process is completed by fleet staff working closely with the "Lines of Business" to procure appropriate vehicles/equipment to meet operational needs.					
4.3	Vehicle Usage and Replacement Criteria	Optional 1	- Usage guidelines and replacement criteria (i.e. policy) based on a life cycle assessment and evidence of adherence to the policy	Y	1	
	Auditor's Notes:					

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Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type		Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
	A comprehensive life cycle replacement plan is in use. Life cycles are reviewed every year prior to establishing a capital request. The 6-8 year replacement plan was analysed and has been designed to consider cost of capital, maintenace and residual value. ARI provides comprehensive reporting to support this catagory.						
4.4	Standard Vehicle & Component Purchasing List	Optional 1	- List by use, department, operating conditions, etc.		Y	1	
	Auditor's Notes: A standardization policy applies to all replacement, new and specialized equipment. Standard specifications are developed by in-house engineer who identifies efficiencies that can be applied to accommodate specific needs.						

Total Required Points 5
Total Optional Points 5

Comments

5.0 Fuel Data Management

5.1	Fuel Data Management System	Required 3	- Proof of fuel consumption data management system (software, data recording system, etc.)		Y	3	
	Auditor's Notes: Hydro One's data management system is provided by ARI used to track consumption on individual vehicles. Data is used to manage each line of business and cost center on a monthly and annual consumption specifically, cost per kilometer. Exception reports are used to manage vehicles on a daily basis.						
5.2	Fuel Performance Monitoring & Reporting	Required 3	- Fuel consumption reports including business performance indicators, (L / 100 km, mpg, or other)		Y	3	
	Auditor's Notes: Hydro One fully meets this requirement.						
5.3	Internal and/or External Benchmarking Program	Required 1	- Fleet Review report or Benchmarking reports		Y	1	
	Auditor's Notes: E3 review reports, in-house reporting by business line, cost center and unit benchmarked against other vehicle types within the organization.						

Total Required Points 7
Total Optional Points 0

6.0 Operations & Maintenance

6.1	Preventative Maintenance Program	Required 3	- PM inspection and maintenance tasks, PM records for vehicles		Y	3	
	Auditor's Notes: Hydro One is currently using an automated system (Virual Garage). The current multi-level system allows for tracking work in progress and completed work orders. This system is used to meet standard Preventative Maintenance and Provincially mandated inspection criteria based on vehicle GVW.						
6.2	Vehicle Fuel Efficiency Operating Procedures	Optional 1	- Demonstrate procedures which contribute to fuel efficiency (i.e. speed policy, vehicle weighing, etc.)		Y	1	
	Auditor's Notes: Hydro One vehicle policy includes speeding, vehicle weight limitations and other proceedures demonstrating their efforts to continually seek efficiencies.						

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Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Points Awarded	System Messages
6.3	On-board Vehicle Data Analysis & Reporting	Optional	- Vehicle ECM or on-board computer data reports and analysis of results	Y	1	
		1	*NOTE:* Must demonstrate how data influences practices			
	Auditor's Notes: On-board data collection and analysis is applied to over 400 on-road vehicles outfitted with GPS. The results of using this optimization technology has been demonstrated through a reduction in the use of gasoline and diesel fuel. A reduction in CO2 of 156,.675 Kg through reduced idling. Speeding is monitored to limit 110km. The overall fuel reduction will be apprarent in 2010 with one full year of operation.					
6.4	Vehicle Emissions Testing	Optional	- Vehicle emissions test data (tailpipe or opacity tests)	Y	1	
		1				
	Auditor's Notes: An emission testing schedule is adhered to, supporting annual re-licensing of any diesel powered vehicles (Ontario Drive Clean Program). In addition, gasoline emission testing inspections are required on an annual basis.					
6.5	Predictive Maintenance Program	Optional	- Predictive Maintenance inspection & maintenance tasks AND Predictive Maintenance records	Y	3	
		3				
	Auditor's Notes: Hydro one has dedicated staff to build predictive modelling to track and implement a very successful program. A current example showed that the injectors in DT 466 engines were replaced before failure. In addition, Hydro One has saved replacing over 100 engines as a result of proper predictive modelling.					
6.6	Recycle, Reuse, Recover, Reduce Program	Required	- Vehicle parts / perishables list of final disposal indicating recycled, reused, recovered, reduced or extended.	Y	1	
		1				
	Auditor's Notes: Hydro One corporate policy is applied throughout the organization that supports the requirements in this section.					
6.7	Innovation Points	Optional	- Demonstrate techniques for optimizing performance of vehicles and proof of performance and implementation	N		
		1				
	Auditor's Notes: Could not demonstrate anything in this category.					

Total Required Points	4
Total Optional Points	7

7.0 Trip & Route Planning

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Points Awarded	System Messages
7.1	Route Planning	Optional	- Use of mapping or mapping technologies to choose most efficient routing to final destination or overall route	Y	3	
		3				
	Auditor's Notes: Hydro One dispatch system provides for the most efficient route planning. Vehicles are located to minimize distance travelled between customer calls.					
7.2	Load Optimization	Optional	- Use of strategies or technologies to maximize usefulness of vehicle or overall hauling capacity of vehicle	Y	3	
		3				

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Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
	Auditor's Notes: Vehicles in the Hydro One fleet are designed to support all equipment, tools and supplies to ensure customer service levels are maintained. The vehicle review committee focuses on developing the appropriate specifications to ensure vehicles meet optimal weight carrying capacities.					
7.3	Minimize Empty Trips	Optional 1	- Use of strategies, programs or technologies that minimize empty load trips	Y	1	
	Auditor's Notes: Given the nature of Hydro One business, empty trips are not generally an issue. However, vehicle design has allowed Hydro to carry more staff while using crew cab vehicles. This has eliminated having to use an empty vehicle to only transport passengers.					
7.4	Logistics / Dispatch	Optional 1	- Demonstrate strategies or techniques for minimizing queuing, vehicle waiting, etc. that contributes to idling	Y	1	
	Auditor's Notes: Allocation and Logistics are primary concerns for Hydro One. This concern is the main focus to provide hydro power to all clients. All outages are considered critical and to meet this service demand, vehicles are strategically located throughout the province to respond to meet a 2 hour response mandate.					
7.5	Innovation Points	Optional 1	Identify intent, method(s) for measuring impact, verify implementation, detail how it differs from Credits 7.1-7.4.	N		
	Auditor's Notes: Could not demonstrate anything in this category.					

Total Required Points 0
Total Optional Points 9

8.0 Utilization Management

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Implementation: Points Awarded	Implementation: System Messages
8.1	Utilization Benchmark & Exception Reporting	Required 1	- Fleet Review Level I report or calculation of vehicle utilization (by hour or by distance travelled)	Y	1	
	Auditor's Notes: Fleet Review Level I report for 2007 and 2008 identifies utilization by vehicle class.					
8.2	Vehicle Utilization Targets	Optional 1	- Commitment to Utilization targets, demonstrate general adherence	Y	1	
	Auditor's Notes: Hydro One has adopted an 80% utilization target for the core fleet. All other vehicles are held to a billable time to recover all costs.					
8.3	Utilization Monitoring Program	Optional 3	- Demonstration of vehicle utilization or improvements in utilization from Fleet Review Baseline.	Y	3	
	Auditor's Notes: Hydro One tracks and reports utilization for each line of busness broken down into cost centers. Peoplesoft is used to provide all costs that are rolled up to aid in overall evaluations. In addition, exceptions can be viewed on per unit basis.					
8.4	Innovation Points	Optional 1	Measurement of impact, verify implementation, and detail difference from Credits 8.1-8.3.	N		

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Auditor Worksheet - Hydro One 2009

Credit	Green Fleet Standard	E3 Rating	Verification Type	Implementation: Verified? (Y/N)	Points Awarded	System Messages
	Auditor's Notes: Could not demonstrate anything in this category.					

Total Required Points 1
Total Optional Points 5

9.0 Fuel Efficiency

9.1	Improvements in Fuel Efficiency	Required 5	- Demonstrated improvements in fuel efficiency from Fleet Review Baseline year (12 mth min., > 2000)	Y	5	
	Auditor's Notes: Fuel efficiency improved by 7% from 2007 to 2008. Average fuel efficiency 2007 = 25.32 l/100km 2008= 23.55 l/100km					

Total Required Points 5
Total Optional Points 0

10.0 GHG Emissions

10.1	Demonstrated Net Reductions in GHG Emissions	Optional 5	- Demonstrated improvements in GHG emissions from Fleet Review Baseline year (12 mth min., > 2000)	N		
	Auditor's Notes: GHGs went up by 8.85%; Tailpipe emissions: 2007 = 45,117.6 tonnes CO2e; 2008 = 49,049 tonnes CO2e Lifecycle emissions: 2007 = 63,990.4 tonnes CO2e; 2008 = 69,655.4 tonnes CO2e. The GHG *intesity* however was improved, and the increased emissions are a result of a larger fleet (by 4.8%) and farther distance travelled (by 17.08%).					
10.2	Net Reductions in GHG Emissions (Carbon Credits)	Optional 3	- Demonstrated improvements in GHG emissions from Fleet Review Baseline year (12 mth min., > 2000)	N		
	Auditor's Notes: See above.					
10.2	Carbon Neutral Fleet (Carbon Credits)	Optional 5	- Demonstrated carbon neutral	N		
	Auditor's Notes: Not a carbon neutral fleet.					

Total Required Points 0
Total Optional Points 13

Points Summary

Total Required Points	42
Total Optional Points	58
TOTAL AVAILABLE POINTS	100

Rating Summary

Bronze	55	-	66
Silver	67	-	78
Gold	79	-	90

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Attachment A

Large-scale Photovoltaic Solar Power Integration in Transmission and Distribution Networks

Project Value: $6 million
Project Start Date: January 1, 2009

Short Project Description: Development of comprehensive solutions for grid integration of large scale photovoltaic solar farms and other potential renewable energy sources.

Long Project Description: The University of Western Ontario and the University of Waterloo are developing comprehensive solutions to help grid operators incorporate large-scale solar farms on to their networks. By developing technologies to efficiently convert solar energy to electricity, and produce innovative software for making weather-based predictions to help manage unique weather challenges, the creation of a robust solar power integration plan has the potential to encourage utilities in Ontario and around the world to adopt solar technologies. Led by the University of Western Ontario and the University of Waterloo, project partners include Hydro One Networks Inc., the Ontario Centres of Excellence, First Solar Farms Canada Inc., BlueWater Power, and London Hydro.

New Intellectual Property: A great deal of intellectual property is being generated as a result of this project which is increasing the body of knowledge in smart grid technology significantly.

Use of Solar Farms as Storage Devices
A patent**,** "Utilization of Solar Farm Inverter as Statcom" was filed on September 15, 2009. It will allow a solar farm, normally completely idle in the night, to play a significant role in: 1) allowing increased connection of wind farms 2) regulating grid voltage 3) creating potentially sign**i**ficant revenue for a PV solar farm during the night. Further work has determined that a solar farm is able to act as an energy storage device in the night on a line with other generators, not just wind, to potentially obviate the need for inclusion of costly FACTS devices on the line these devices are normally in the range of $15M.
Renewable Generation used as FACTS to increase Transmission Capacity.
A second patent, "*Novel Control of Inverter based DGs as FACTS (DGFACTS) for Enhancing Grid Power Transmission Limits*," has been filed by the University of Western Ontario for new technology which enables renewable generation to increase the capacity of the transmission system in Ontario. By using innovative controls of existing DG equipment it has been shown that renewable generation can potentially be used instead of FACTS devices. To date, FACTS devices have been the only way of increasing transmission capacity. Since individual devices cost anywhere from $20M – S100M this is a costly option.
Wind and Snow Loading
The work to simulate wind loading on solar panels has generated a lot of interesting results. The panel configurations most likely to be adversely affected during wind and snow loading are at specific corners of the array and a design to mitigate the effects has been proposed.

MEMORANDUM OF AGREEMENT

BETWEEN

Her Majesty the Queen
in Right of the province of Ontario
as Represented by the Minister of Energy

AND

Hydro One Inc. ("HOI")

A. ***Purpose:***

This document sets out the agreement between Hydro One Inc. ("HOI"), a corporation incorporated under the *Business Corporations Act* (Ontario) (the "OBCA") and subject to/governed by the *Electricity Act, 1998* (the "EA") and its sole shareholder, Her Majesty the Queen in Right of the Province of Ontario as represented by the Minister of Energy (the "Shareholder") on mandate, governance, responsibilities, performance expectations and executive compensation.

This Memorandum of Agreement is intended to promote a positive and co-operative working relationship between HOI and the Shareholder.

B. ***Mandate:***

1. HOI's core mandate is the safe, reliable and cost-effective transmission and distribution of electricity to Ontario electricity users.

2. HOI will operate as a commercial enterprise with an independent Board of Directors that will, at all times, exercise its fiduciary responsibility and a duty of care to act in the best interests of HOI.

C. ***Governance:***

The governance relationship between HOI and the Shareholder shall be founded on the following principles:

1. The Board of Directors of HOI is responsible for oversight of the management of the business and affairs of the Corporation, including the appointment of executive officers and management and the formation and operation of key committees essential to its governance structure.
2. HOI will maintain a high level of accountability and transparency as follows:
   (i) As an OBCA company, HOI is subject to all of the governance requirements associated with the OBCA, and as a reporting issuer of debt securities is subject to the governance requirements under the *Securities Act (Ontario)* and any other applicable securities regulatory requirements.
   (ii) HOI is also subject to the *Freedom of Information and Protection of Privacy Act* (Ontario), the *Public Sector Salary Disclosure Act* (Ontario) and the *Auditor General Act* (Ontario).
   (iii) As a transmitter and distributor of electricity, and as a generator for the purposes of distributing electricity to remote areas through its wholly-owned subsidiary Hydro One Remote Communities Inc., HOI is licensed by and subject to the jurisdiction of the Ontario Energy Board (the OEB) pursuant to the *Ontario Energy Board Act, 1998*, including all of the OEB's orders, codes and other regulatory requirements as are applicable.

3. The Shareholder may at times direct HOI to undertake special initiatives. Such directives will be communicated as written declarations by way of an Unanimous Shareholder Agreement or Declaration in accordance with Section 108 of the OBCA. Hydro One will disclose this direction as required under securities legislation.

D. ***Responsibilities – Operational:***

1. HOI will operate its transmission and distribution assets as efficiently and cost-effectively as possible, within the legislative and regulatory framework of the Province of Ontario. The company will operate these assets in a manner that appropriately mitigates the Shareholder's financial and operational risk.
2. HOI will continue to operate in full compliance within the legislative and regulatory framework and using best practices with respect to employee and public safety.
3. HOI will prioritize investments in transmission and distribution capacity to support projects necessary to maintain ongoing grid security and reliability.
4. HOI will operate in Ontario in accordance with the highest corporate standards, including but not limited to the areas of corporate governance, social responsibility, environmental stewardship and corporate citizenship.

E. ***Responsibilities – Financial:***

1. HOI will annually prepare a three to five year investment plan for new projects. Once approved by HOI's Board of Directors, the plan will be submitted to the Minister of Energy and the Minister of Finance for concurrence.
2. As an OBCA corporation and reporting issuer with a commercial mandate, HOI will operate on a financially sustainable basis and maintain or increase the value of its assets for its Shareholder.
3. HOI will obtain the approval of the Minister of Energy and Minister of Finance, in advance, with respect to:
    (i) any proposal to issue or transfer shares in the Corporation or any of its subsidiaries;
    (ii) any proposed acquisition or divestment of assets, other major transaction, proposal or action by the Corporation or any of its subsidiaries, where such acquisition or divestment, major transaction, proposal or action would potentially have a material impact on:
        - the cash flow to the Ontario Electricity Financial Corporation
        - the financial Interests of the Province; or
        - the payments in lieu of taxes by the Corporation and its subsidiaries under the EA.

F. ***Responsibilities – Communications & Reporting:***

1. The HOI Board of Directors and the Minister of Energy will meet, as needed, to enhance mutual understanding of interrelated strategic matters.
2. HOI's Chair, President and Chief Executive Officer and the Minister of Energy will meet on a regular basis.
3. HOI's Chair, President and Chief Executive Officer and the Minister of Finance will meet at the Minister's request.
4. HOI's senior management and senior officials of the Ministry of Energy and the Ministry of Finance will meet and communicate on a regular and as needed basis to discuss ongoing issues and clarify expectations or to identify and address emergent issues, including but not limited to issues that may have a material impact on the financial performance of HOI or the Shareholder. Such communication and reporting from HOI should be on an immediate or, at minimum, an expedited basis where an urgent material human safety or system reliability matter arises.

5. HOI will provide the Minister of Energy and senior officials of the Ministries of Energy and Finance its multi-year and annual business planning information, and advise on developments and issues that may materially impact the business and financial performance of HOI, and/or the financial performance and interest of the Shareholder, on a timely basis.
6. HOI will provide the Minister of Energy and senior officials of the Ministries of Energy and Finance quarterly and monthly financial reports and briefings on operational and financial performance against plan.
7. In all other respects, HOI will communicate with government ministries and agencies in a manner typical for an Ontario corporation of its size and scope.

G. ***Performance Expectations:***

1. HOI will seek continuous improvement in the operational performance of its transmission and distribution assets and internal operations.
2. HOI will annually establish three to five year performance targets for operating and financial results as well as major project execution. Key measures are to be agreed upon with the Minister of Energy and the Minister of Finance. HOI will benchmark its performance on these measures against the performance of other utilities, including international utilities where information is available. On these measures, Hydro One will target performance to be in the top quartile of private and publicly-owned utilities in North America.
3. Once approved by HOI's Board of Directors, HOI's annual performance targets will be submitted to the Minister of Energy and the Minister of Finance for concurrence.
4. HOI will provide annual reports on its performance compared to targets to senior officials of the Ministry of Energy and Ministry of Finance.

H. ***Executive Compensation:***

1. HOI will have regard to the recommendations of the Agency Review Panel regarding Executive and Senior Management Compensation in setting executive compensation policies, procedures and practices, including internal governance practices and procedures.

I. ***Review of this Agreement:***

This agreement will be reviewed and updated as required.
This Memorandum of Agreement shall be effective as of the date hereof:

Dated the 27 day of March, 2008

On behalf of HOI:

Original Signed by:

R. Burak

Rita Burak
Chair,
Hydro One Inc. Board of Directors

On behalf of the Shareholder:

Original Signed by:

Gerry Phillips

Her Majesty the Queen in Right of the Province of Ontario as represented by the Minister of Energy, Gerry Phillips

School Energy Coalition (SEC) INTERROGATORY #6 List 1

Interrogatory

Ref: [Ex. A/9/2. Attach 1] With respect to the Q1 report

a. Please advise when the Q2 report will be available, and provide a copy at that time.

b. P. 4. Please provide a copy of the commitment letter or other main document setting out the terms of the current syndicated facility.

c. P. 7. Please provide the new Inergi Agreement, with a list of all changes from the existing agreement.

d. P. 8. Please provide the results of the parallel tracking of CGAAP vs. IFRS for the first six months of 2010.

Response

a. The Q2 consolidated financial report is available as Attachment 1 to this Interrogatory Responses.

b. Attachment 2 is a copy of the commitment letter setting out the terms of the current syndicated facility.

c. A copy of the redacted contract will be filed in paper form.

d. Hydro One has been tracking certain CGAAP versus IFRS differences to enable to the Company to report its 2010 financial results on an IFRS basis when it was expected to implement IFRS effective January 1, 2011. This implementation date could be deferred as the Canadian Accounting Standards Board recently issued an Exposure Draft proposing that rate regulated utilities have the option to defer IFRS implementation for two years until 2013.

Hydro One has tracked depreciation of its in-service assets on a comparative CGAAP and IFRS basis. While no increase in depreciation expense was included in Hydro One's 2012 application, Hydro One Transmission's IFRS depreciation expense for fiscal 2010 is currently forecast to be higher than comparative CGAAP depreciation by approximately $4.6 million. This reflects the impact of changing from group depreciation to an IFRS-compliant straight-line item procedure method.

Hydro One continues to assess the OM&A impact expected to result from moving to an overhead accounting method that is consistent with IAS 16, the IFRS that governs the costing of property, plant and equipment. Hydro One is still in the process of finalizing its determination of which specific expenditures will be capitalizable under IFRS.

Other potential changes between IFRS for external reporting and CGAAP could still result but, due to uncertainties with respect to the outcome of the International Accounting Standards Board's project on accounting for rate regulated activities, we are awaiting further guidance to track these items.

HYDRO ONE INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS

RESULTS OF OPERATIONS

Revenues

	Three months ended June 30				Six months ended June 30			
(Canadian dollars in millions)	**2010**	**2009**	**$ Change**	**% Change**	**2010**	**2009**	**$ Change**	**% Change**
Transmission	306	271	35	13	626	573	53	9
Distribution	842	803	39	5	1,825	1,789	36	2
Other	17	16	1	6	33	31	2	6
	1,165	1,090	75	7	2,484	2,393	91	4
Average Ontario 60-minute peak demand *(MW)*[1]	20,610	19,615	995	5	20,772	20,901	(129)	(1)
Distribution - units distributed to customers *(TWh)*[1]	6.4	6.4	-	-	14.4	14.8	(0.4)	(3)

[1] System-related statistics are preliminary

The demand for electricity generally follows normal weather-related variations, and, therefore, our energy-related revenues, all other things being equal, will tend to be higher in the first and third quarters than in the second and fourth quarters.

Transmission

Transmission revenues predominantly consist of our transmission tariff, which is based on the monthly peak demand for electricity across our high-voltage network. The tariff is designed to recover revenues necessary to support a transmission system with sufficient capacity to accommodate the maximum expected demand. Demand is primarily influenced by weather and economic conditions. Transmission revenues also include minor amounts of ancillary revenues which are primarily attributable to maintenance services provided to generators and secondary use of our land rights-of-way.

Our transmission revenues were higher by $35 million, or 13%, in the second quarter, and by $53 million, or 9%, in the first six months, compared to the same periods last year. The average monthly peak demand was higher for the second quarter, resulting in an increase in transmission revenue of $9 million. However the average monthly peak demand was lower on a year-to-date basis, resulting in a $7 million decrease in revenue for the first six months. Among other factors, weather was generally milder over the winter months and unseasonably hot in the latter part of the second quarter.

The Ontario Energy Board (OEB) rendered its decision on our 2009 and 2010 transmission rate application on May 28, 2009 following an extensive written and oral review. The resulting tariff increases approved effective July 1, 2009 and January 1, 2010 support our investments in respect of the Ontario Power Authority's (OPA) supply mix policy, including the phase-out of coal-fired generation and addressing aging infrastructure. These increases resulted in higher second quarter revenues of $30 million and higher year-to-date revenues of $60 million. We also experienced higher revenues of $4 million in the quarter and $9 million on a year-to-date basis associated with the disposition of OEB-approved deferral accounts.

Transmission tariff revenue increases were partially offset by lower ancillary revenues of approximately $8 million in the second quarter and $9 million on a year-to-date basis due to the impact of the May 28, 2009 OEB decision. Consistent with this decision, ancillary revenues received in excess of forecasted levels are recorded in a regulatory account and are not recognized as revenue.

Distribution

Distribution revenues include our distribution tariff, as well as amounts to recover the cost of purchased power used by our customers. Accordingly, our distribution revenues are influenced by the amount of electricity we distribute, the cost of purchased power and our approved distribution tariffs. Distribution revenues also include a minor amount of ancillary distribution services revenues, such as fees related to the use of our poles by the telecommunications and cable television industries, and miscellaneous charges such as those for late payments.

Distribution revenues increased by $39 million, or 5%, in the second quarter, and by $36 million, or 2%, in the first six months compared to the same periods last year. This change includes the recovery of higher purchased power costs of $24 million in the second quarter and $13 million in the first six months, as described below under "Purchased Power."

Increases in revenue reflect two OEB decisions on the distribution tariff rates of our subsidiary, Hydro One Networks Inc. (Hydro One Networks). On May 13, 2009, the OEB approved new tariff rates under the third generation Incentive Rate Mechanism effective May 1, 2009. On April 9, 2010, the OEB approved new tariff rates following our cost of service application effective May 1, 2010. Both decisions followed extensive written and oral reviews of our evidence submitted for the maintenance and investment requirements of the distribution system, including those to support renewable distributed generation. The new OEB-approved tariff rates resulted in higher distribution revenues of $17 million during the second quarter and $29 million in the first six months. These tariff rate increases support the maintenance and investment requirements of our distribution system and enable the safe and reliable delivery of electricity to our customers throughout Ontario. The April 9, 2010 decision also resulted in increased revenue related to the recovery of smart meter investments and smart grid investments of $6 million in the quarter and $12 million in the first six months.

These distribution revenue increases were partially offset by lower energy consumption of $14 million in the first six months, resulting primarily from the milder weather in the first quarter of this year. In addition, revenues associated with the recovery of a distribution-related regulatory account ceased effective April 30, 2010, resulting in a revenue reduction of $4 million for both the quarter and the six month period.

We also experienced lower ancillary revenues of approximately $4 million in the quarter and nominal changes on a year-to-date basis.

Purchased Power

Purchased power costs incurred by our Distribution Business represent the cost of electricity delivered to customers within our distribution service territory and comprise the wholesale commodity cost of energy, the Independent Electricity System Operator's (IESO) wholesale market service charges, and transmission charges levied by the IESO. The commodity cost of energy for certain low-volume and designated customers is based on the OEB's Regulated Price Plan (RPP), which consists of a two-tiered pricing structure with threshold amounts and a separate pricing structure for RPP customers on time-of-use billing, both adjusted twice annually. Customers who are not eligible for the RPP pay the market price for electricity, adjusted for the difference between market prices and the prices paid to generators under the *Electricity Restructuring Act, 2004*. A summary of the RPP impacting the reporting period is provided below.

	Tier Threshold (kWh/month)		Tier Rates (cents/kWh)	
Effective Date	**Residential**	**Non-Residential**	**First Tier**	**Second Tier**
November 1, 2008	1,000	750	5.6	6.5
May 1, 2009	600	750	5.7	6.6
November 1, 2009	1,000	750	5.8	6.7
May 1, 2010	600	750	6.5	7.5

RPP Time-of-Use	**Rates (cents/kWh)**		
Effective Date	**On Peak**	**Mid Peak**	**Off Peak**
May 1, 2010	9.9	8.0	5.3

Purchased power costs increased in 2010 by $24 million, or 5%, to $542 million in the second quarter and by $13 million, or 1% to $1,197 million in the first six months compared to the same periods last year. The increases in our purchased power costs were primarily due to the impact of changes in the OEB's RPP rate for residential and other eligible customers of $34 million in the quarter and $31 million in the year-to-date period, higher purchased power costs for customers who are not eligible for the RPP of $18 million in the quarter and $40 million in the first six months, and increased transmission charges due to the OEB's transmission rate decisions effective July 1, 2009 and January 1, 2010 of $8 million for the quarter and $17 million for the year-to-date period. The effect of these increases was partially offset by lower demand for electricity of $26 million in the quarter and $61 million in the year-to-date period and the impact of lower charges levied by the IESO of $10 million in the second quarter and $14 million in the first six months.

Operation, Maintenance and Administration

Our operation, maintenance and administration costs consist of labour, material, equipment and purchased services which support the operation and maintenance of the transmission and distribution systems. Also included in these costs are property taxes and payments in lieu thereof on our transmission and distribution lines, stations and buildings.

Operation, maintenance and administration costs for each of our three business segments were as follows:

	Three months ended June 30				Six months ended June 30			
(Canadian dollars in millions)	**2010**	**2009**	**$ Change**	**% Change**	**2010**	**2009**	**$ Change**	**% Change**
Transmission	103	120	(17)	(14)	210	223	(13)	(6)
Distribution	148	147	1	1	285	274	11	4
Other	15	14	1	7	29	27	2	7
	266	281	(15)	(5)	524	524	-	-

Transmission

Operation, maintenance and administration expenditures incurred to sustain our high-voltage transmission stations, lines and rights-of-way decreased by $17 million, or 14%, in the quarter and by $13 million, or 6%, on a year-to-date basis, compared to the same periods last year. Within our work programs, we continued to invest in the safe and reliable operation of our transmission system that spans Ontario. Our work program expenditures were lower by $1 million in the quarter, but were higher by $8 million on a year-to-date basis, compared to the same periods last year. The year-to-date impact was mainly associated with our planned station maintenance programs to support aging infrastructure, particularly on transformers, for corrective station maintenance and expanded forestry programs. In addition, we experienced reductions of $16 million and $21 million related to our expenditures incurred to support the transmission system in the second quarter and first six months, respectively. These reductions primarily reflect the reallocation of resources to the capital work program, partially offset by higher information technology support expenditures and infrastructure enhancements.

Distribution

Operation, maintenance and administration expenditures incurred to sustain our low-voltage distribution system increased by $1 million, or 1%, in the quarter and by $11 million, or 4%, on a year-to-date basis, compared to the same periods last year. Our work program expenditures were relatively unchanged in the quarter being higher by $1 million, and were higher by $11 million on a year-to-date basis, compared to the same periods last year. In both the quarter and the year-to-date periods, we experienced increased expenditures associated with the advancement of our forestry programs given favourable weather conditions and we had increased requirements within our station maintenance and engineering support programs. These expenditures were offset in the quarter and partially offset in the year-to-date period by lower storm restoration requirements, and lower planned line maintenance work reflecting lower field meter readings as installed smart meters begin to reach the required level of reliable communication. Our expenditures in support of our distribution system were consistent with the prior year both in the quarter and on a year-to-date basis.

Depreciation and Amortization

Depreciation and amortization expense increased by $15 million, or 12%, to $144 million in the second quarter and by $30 million, or 12%, to $283 million in the first six months compared to the same periods last year. These increases were mainly attributable to new assets coming into service, consistent with our ongoing capital work program. In addition, higher expenditures necessary to comply with Environment Canada's regulations on the removal of polychlorinated biphenyls increased the amortization of our related environmental regulatory asset. These increases were partially offset by the completion of amortization of a distribution regulatory account during the second quarter.

Financing Charges

Financing charges increased by $14 million, or 19%, to $88 million in the second quarter and by $27 million, or 18%, to $173 million for the year-to-date period compared to last year. These increases were primarily due to a net increase in interest expense reflecting a higher average level of debt to support capital requirements, partially offset by a lower average effective interest rate. In addition, although we had higher levels of construction in progress, we capitalized less interest due to lower OEB-approved interest capitalization rates.

Provision for Payments in Lieu of Corporate Income Taxes

The provision for payments in lieu of corporate income taxes increased by $14 million, or 233%, to $20 million in the second quarter and by $6 million, or 22%, to $33 million on a year-to-date basis, compared to the same periods last year. The

quarterly increase was primarily due to higher pre-tax income this year, partially offset by a reduction in the statutory rate from 33.0% to 31.0%. Also contributing to this increase were lower temporary differences related to depreciation and the capital cost allowance being claimed on our fixed assets. In the year-to-date period, the increase in the provision was due to higher pre-tax income, temporary differences related to capital cost allowance and depreciation, and higher future income taxes, partially offset by the reduction in the statutory rate and by temporary differences associated with the recovery of certain regulatory accounts.

Net Income

Net income of $105 million in the second quarter and $274 million year-to-date was higher by $23 million, or 28%, and by $15 million, or 6%, respectively, compared to 2009 results. Net income was higher primarily due to increased revenues in both periods as a result of the OEB-approved transmission tariff rate increases that were effective July 1, 2009 and January 1, 2010 which support investments in respect of the OPA's supply mix policies, which include the phase-out of coal-fired generation and investments to address aging infrastructure. Also contributing to higher net income in both periods were increased revenues as a result of the OEB decisions in respect of our distribution rates effective May 1, 2009 and May 1, 2010 that support necessary maintenance and investment requirements of our distribution system. The impact of increased tariffs on net income was partially offset by higher financing charges and higher depreciation in both periods.

QUARTERLY RESULTS OF OPERATIONS

The following table sets forth unaudited quarterly information for each of the eight quarters from September 30, 2008 through June 30, 2010. This information has been derived from our unaudited interim Consolidated Financial Statements which, in the opinion of our management, have been prepared on a basis consistent with the audited annual Consolidated Financial Statements and which include all adjustments, consisting only of normal recurring adjustments, necessary for fair presentation of our financial position and results of operations for those periods. These operating results are not necessarily indicative of results for any future period and should not be relied upon to predict our future performance.

(Canadian dollars in millions)	**2010**			**2009**			**2008**	
Quarter ended	**Jun. 30**	**Mar. 31**	**Dec. 31**	**Sep. 30**	**Jun. 30**	**Mar. 31**	**Dec. 31[2]**	**Sep. 30**
Total revenue[1]	1,165	1,319	1,207	1,144	1,090	1,303	1,194	1,126
Net income[1]	105	169	111	100	82	177	131	112
Net income to common shareholder[1]	100	165	106	96	77	173	126	108

[1] The demand for electricity generally follows normal weather-related variations, and therefore our electricity-related revenues and profit, all other things being equal, would tend to be higher in the first and third quarters than in the second and fourth quarters.

[2] As a result of the OEB's December 18, 2008 decision on Hydro One Networks' distribution rate application that was effective May 1, 2008, revenues in the fourth quarter of 2008 reflect a $25 million increase in respect of the period May 1, 2008 to December 31, 2008.

LIQUIDITY AND CAPITAL RESOURCES

Our primary sources of liquidity and capital resources are funds generated from operations, debt capital market borrowings and bank financing. These resources will be used to satisfy our capital resource requirements, which continue to include capital expenditures, servicing and repayment of our debt, payments related to our outsourcing arrangements, other investing activities, and dividends.

Summary of Sources and Uses of Cash	Three months ended June 30		Six months ended June 30	
(Canadian dollars in millions)	**2010**	**2009**	**2010**	**2009**
Operating activities	257	192	544	373
Financing activities				
Long-term debt issued	-	-	1,000	600
Long-term debt retired	(400)	-	(400)	(400)
Short-term notes payable	-	75	(55)	225
Dividends paid	(5)	(27)	(19)	(135)
Investing activities				
Capital expenditures	(383)	(383)	(705)	(719)
Long-term investment	-	-	(250)	-
Other financing and investing activities	12	3	19	20
Net change in cash and cash equivalents	(519)	(140)	134	(36)

Operating Activities

Net cash from operating activities increased by $65 million, to $257 million in the second quarter, and increased by $171 million to $544 million in the first six months, compared to 2009. These increases primarily reflect improved accounts receivable collection cycles, partially offset in the quarter by lower revenue levels. Operating activities were further positively impacted in both periods by changes to accounts payable balances due to variances in purchased power costs related to the demand for electricity and changes to certain regulatory accounts, particularly retail settlement variance accounts.

Financing Activities

Short-term liquidity is provided through funds from operations, our Commercial Paper Program under which we are authorized to issue up to $1,000 million in short-term notes with a term to maturity of less than 365 days, our revolving credit facility and through our holdings of Province of Ontario Floating Rate Notes.

At June 30, 2010, we had no short-term notes outstanding. The Commercial Paper Program is supported by a total of $1,500 million in liquidity facilities comprised of a $1,250 million committed revolving credit facility with a syndicate of banks and the holding of $250 million of Province of Ontario Floating Rate Notes. The short-term liquidity under this program and anticipated levels of funds from operations should be sufficient to fund our normal operating requirements. During the quarter, we increased the amount of our $500 million revolving credit facility, entered into in the first quarter, to $1,250 million and we extended the term of the facility to June 2013. We also cancelled the $750 million revolving credit facility which would have matured in August 2010.

At June 30, 2010, we had $7,475 million in long-term debt outstanding, including the current portion. Our notes and debentures mature between 2010 and 2046. Long-term financing is provided by our access to the debt markets, primarily through our Medium-Term Note (MTN) Program. On July 27, 2009, we filed a base shelf prospectus to renew our MTN Program for another 25 months. The maximum authorized principal amount of medium-term notes issuable under this program until August, 2011 is $3,000 million, of which $1,750 million was remaining and available as at June 30, 2010.

	Rating	
Rating Agency	**Short-term Debt**	**Long-term Debt**
DBRS Limited	R-1 (middle)	A (high)
Moody's Investors Service Inc.	Prime-1	Aa3
S&P	A-1	A+

We have the customary covenants normally associated with long-term debt. Among other things, our long-term debt covenants limit our permissible debt as a percentage of our total capitalization, limit our ability to sell assets and impose a negative pledge provision, subject to customary exceptions. The credit agreements related to our credit facilities have no material adverse change clauses that could trigger default. However, the credit agreements require that we provide notice to the lenders of any material adverse change within three business days of the occurrence. The agreements also provide

limitations that debt cannot exceed 75% of total capitalization and that debt issued by our subsidiaries cannot exceed 10% of the total book value of our assets. We are in compliance with all these covenants and limitations as of June 30, 2010.

In the year-to-date period of 2010, we issued $1,000 million in long-term debt under our Medium-term Note Program in the first three months and we made second quarter repayments of $400 million in maturing long-term debt. In the comparative period last year, we issued $600 million in long-term debt under our Medium-Term Note Program and repaid $400 million in maturing long-term debt during the first three months, and did not issue any long-term debt nor were there any debt maturities during the second quarter. During the first six months of this year, we reduced our short-term notes by $55 million, all in the first quarter, and in the comparative period of 2009 we increased our short-term notes by $150 million and $75 million in the first and second quarters respectively.

Common dividends are declared at the sole discretion of our Board of Directors, and are recommended by management based on results of operations, maintenance of the deemed regulatory capital structure, financial condition, cash requirements, and other relevant factors such as industry practice and shareholder expectations. Common dividends pertaining to the quarterly financial results are generally declared and paid in the immediately following quarter.

Consistent with the comparative periods in the prior year, we paid preferred dividends of about $5 million to the Province of Ontario (Province) in the second quarter and $9 million on a year-to-date basis. We also paid common dividends of $10 million, all in the first three months of this year, compared to $104 million and $22 million in the first and second quarters of 2009, respectively.

Our objectives with respect to our capital structure are to maintain effective access to capital on a long-term basis at reasonable rates, and to deliver appropriate financial returns. In order to ensure ongoing effective access to capital, we target to maintain an "A" category long-term credit rating.

Investing Activities

Cash used for investing activities primarily represents capital expenditures for each of our three business segments as follows:

	Three months ended June 30				Six months ended June 30			
(Canadian dollars in millions)	**2010**	**2009**	**$ Change**	**% Change**	**2010**	**2009**	**$ Change**	**% Change**
Transmission	209	218	(9)	(4)	404	405	(1)	-
Distribution	174	163	11	7	300	311	(11)	(4)
Other	-	2	(2)	(100)	1	3	(2)	(67)
	383	383	-	-	705	719	(14)	(2)

Transmission

Transmission capital expenditures decreased by $9 million, or 4%, to $209 million in the second quarter, and decreased slightly by $1 million to $404 million in the first six months, compared to the same periods in 2009.

Expenditures to expand and reinforce our transmission system were $104 million in the quarter and $211 million for the first six months of the year, representing a decrease of $12 million and an increase of $8 million over the respective comparable periods. We continued to invest in a number of inter-area network upgrade projects to support the OPA's supply mix objectives for generation. We also continued to make investments in our local area supply projects to address growing loads. For the quarter, these expenditures were more than offset by a reduction in expenditures in our load customer connection projects, a reduction in expenditures associated with local area supply projects that were substantially completed earlier this year, and the near completion of certain inter-area network projects.

Inter-area network upgrades with significant expenditures included the Bruce to Milton Transmission Reinforcement Project, to connect refurbished nuclear and new wind generation sources in the Huron-Grey-Bruce area, and the Northeast Transmission Reinforcement Project, which will increase the North-South interface transfer capability to access available northern generation. In addition, we are installing static var compensators at Nanticoke and Detweiler Transformer Stations, which in the short-term will support increased generation from the Bruce Nuclear facility and in the longer-term, will enhance the transfer capability between South Western Ontario and the Greater Toronto Area (GTA). These investments

were partially offset by lower expenditures associated with the installation of capacitor banks in South Western Ontario. This equipment will provide interim protection to the Bruce Nuclear facility and will expand transmission capacity in South Western Ontario. In addition, we incurred lower expenditures associated with the Cherrywood Transformer Station to Claireville Transformer Station Connection Project, which will enable greater transfer capability across the GTA to accommodate power flows resulting from the new Hydro-Québec interconnection. This work is expected to be completed by the end of the year.

Local area supply projects with expenditures in the second quarter of 2010 include our Woodstock Area Transmission Reinforcement Project, which will increase capacity to ensure supply reliability in the Woodstock area, and our Switchyard Reconstruction Project at our Burlington Transformer Station, which will increase the load supply capacity to ensure reliability of supply to customers in the area. The GTA West Transmission Reinforcement Project, which has increased capacity to ensure supply reliability in the area, as well as the Hurontario Transformer Station to Jim Yarrow Municipal Transformer Station connection, which has increased transmission capacity in the Western Brampton area to allow for future load growth, were both substantially completed in the first quarter of this year, contributing to the reduction in expenditures in the second quarter compared to the prior year. The final completion of our Niagara Reinforcement Project continues to be delayed by the aboriginal land dispute in the Caledonia area. Discussions related to the Niagara Reinforcement Project continue between the aboriginal peoples involved and various government entities and we expect to complete this project when site access becomes available.

Expenditures to sustain our existing transmission system were $89 million in the quarter and $161 million on a year-to-date basis, representing increases of $17 million and $25 million respectively compared to the same periods last year. These increases are primarily related to higher targeted replacements of aging components, specifically within our breaker installation and protection and control equipment programs, and to higher expenditures within our Spare Transformer Purchase Program. In the year-to-date period, we also experienced higher expenditures related to an expanded Wood Pole Replacement Program.

Our other transmission capital expenditures were $16 million in the quarter and $32 million for the first six months, representing respective decreases of $14 million and $34 over the comparative periods. These reductions from the prior year were due to expenditures in 2009 on our investment in an entity-wide information system replacement and improvement project which replaced end-of-life systems and improved productivity, the second phase of which was completed during the third quarter of last year. In addition, expenditures incurred to enhance information security at our Ontario Grid Control Centre were lower compared to the same period in the prior year as we completed a number of enhancements associated with North American Electric Reliability Corporation requirements.

Distribution

Distribution capital expenditures increased by $11 million, or 7%, to $174 million in the second quarter and decreased by $11 million, or 4%, to $300 million for the first six months, compared to the same periods in 2009.

Capital expenditures to expand and reinforce our distribution network were $85 million in the quarter and $149 million for the first six months of the year, representing reductions of $2 million and $23 million over the comparable periods, respectively. The reduction in the year-to-date period was primarily due to the substantial completion of smart meter installations across the province at the end of last year. In the quarter, the lower expenditures related to installations were offset by expenditures on the smart meter network infrastructure and the development and integration of the systems required for time-of-use billing, including meter reading capability and integration to the IESO meter data repository. Smart meter installations continued during the quarter as our total cumulative number of installations exceeded 1,282,000 as at June 30, 2010, thus nearing the program's total target. With over 561,000 meters enabled to support time of use billing as at June 30, 2010, we continue our efforts to migrate our customers to time-of-use pricing; over 126,000 of our customers are now consuming power based on time-of-use-pricing. Our program is one of the largest utility smart meter deployments in North America.

Expenditures to sustain our distribution system of $80 million in the quarter and $137 million year-to-date, increased by $18 million and $29 million, respectively, compared to the same periods last year. These increases were primarily a result of higher expenditures on transport and work equipment and the planned replacement of end-of-life wood poles. In addition, we experienced higher expenditures related to line relocation work in support of municipal road widening projects. These increases were partially offset by lower storm-recovery expenditures.

Our other distribution capital expenditures were $9 million in the quarter and $14 million for the first six months, representing respective reductions of $5 million and $17 million from the comparative periods. These reductions reflect our higher prior period investments in our entity-wide information system replacement and improvement project.

Future Capital Expenditures

Our capital expenditures for 2010 were originally budgeted at $2.0 billion. The 2010 capital budgets for our Transmission and Distribution Businesses were approximately $1,150 million and $850 million, respectively. Capital expenditures were expected to increase to approximately $2.1 billion in 2011 and approximately $2.2 billion in 2012. These expenditures reflected the sustainment requirements of our aging infrastructure budgeted at approximately $530 million in 2010, $620 million in 2011 and $670 million in 2012. Development projects, including inter-area network upgrades that reflect the OPA's supply mix policies to phase out coal generation and local area supply requirements, were budgeted at approximately $890 million in 2010, $780 million in 2011 and $550 million in 2012. These development investments also reflected the continued mass deployment of smart meters within our Distribution Businesses and the building of the required smart meter infrastructure in support of conservation objectives. We will leverage the smart meter investment to build a smart grid which will enhance our operations and support distributed generation. Other capital expenditures related to operations amounted to approximately $410 million in 2010, $290 million in 2011 and $230 million in 2012. Our capital expenditures to support the requirements under the Green Energy Act (GEA) were budgeted at approximately $190 million in 2010, $450 million in 2011 and $740 million in 2012. We are proceeding with our investments in support of the GEA to facilitate renewable generation consistent with the Feed-in-Tariff (FIT) program. Capital expenditures of our other business segment were budgeted at about $15 million in 2010, primarily reflecting the continued build out of the fibre optic network.

As a result of factors such as ongoing discussions with the OPA regarding transmission project needs and priorities and distributed generation requirements, as well as the OEB's distribution rate decision issued April 9, 2010, capital expenditures for 2010 are expected to be lower by approximately $400 million. In addition, on May 19, 2010, we filed a transmission rate application for 2011 and 2012 that included lower capital expenditures than budgeted of $100 million and $250 million, respectively. In respect of our Distribution Business, the OEB approved lower capital expenditures of $120 million from that originally requested in its recent decision on our distribution rate application for 2011. Many projects require external approvals or may be subject to other external influences that are outside of our control. We will not undertake large capital expenditures without a reasonable expectation of recovering them in our rates.

Summary of Contractual Obligations and Other Commercial Commitments

The following table presents a summary of our debt and other major contractual obligations as well as other major commercial commitments.

June 30, 2010 (Canadian dollars in millions)	**Total**	**2010**[1]	**2011/2012**	**2013/2014**	**After 2014**
Contractual Obligations *(due by year)*					
Long-term debt – principal repayments	7,475	200	1,100	1,350	4,825
Long-term debt – interest payments	6,311	199	748	628	4,736
Inergi LP (Inergi) outsourcing agreement[2]	643	73	283	265	22
Operating lease commitments	55	5	12	12	26
Environmental obligations[3]	381	16	68	79	218
Total Contractual Obligations	14,865	493	2,211	2,334	9,827
Other Commercial Commitments *(by year of expiry)*					
Bank line[4]	1,250	-	-	1,250	-
Letters of credit[5]	108	107	1	-	-
Guarantees[5]	326	326	-	-	-
Pension[6]	373	81	280	12	-
Total Other Commercial Commitments	2,057	514	281	1,262	-

[1] The amounts disclosed represent the balances due over the period July 1, 2010 to December 31, 2010.

[2] On May 1, 2010, the Company extended the Master Services Agreement (MSA) with Inergi for a further three-year period. The term of the agreement, which would have expired on February 29, 2012, has been extended to February 28, 2015. Under the extended agreement, Inergi will provide business processing and information technology outsourcing services, as well as core system support related primarily to SAP implementation and optimization. The amounts disclosed include an estimated annual inflation adjustment in the range of 1.8% to 3.0%.

[3] We record a liability for the estimated future expenditures associated with the phase-out and destruction of polychlorinated biphenyl contaminated insulating oil from electrical equipment and for the assessment and remediation of contaminated lands. The expenditure pattern reflects our planned work program for the period.

[4] As a backstop to our commercial paper program, we have a $1,250 million revolving standby credit facility with a syndicate of banks which matures in June 2013.

[5] We currently have bank letters of credit of $107 million outstanding relating to retirement compensation arrangements. The other $1 million included in letters of credit pertains to operating letters of credit. We have also provided prudential support to the IESO on behalf of our subsidiaries as required by the IESO's Market Rules, using parental guarantees of up to a maximum of $325 million and on behalf of two distributors using guarantees of up to a maximum of $660 thousand. Although no letters of credit are required for prudential support, we would have to resume providing bank letters of credit if our credit rating deteriorated to below the "Aa" category.

[6] Contributions to the pension fund are made one month in arrears. Contributions for 2010, 2011 and 2012 will be based on an actuarial valuation effective December 31, 2009 and will depend on future investment returns, changes in benefits or actuarial assumptions. Based on current factors, we currently estimate our pension contributions to be approximately $140 million annually starting in 2010, and variable in 2011 and 2012 based on the level of pensionable earnings. Contributions for 2013 will be based on an actuarial valuation effective December 31, 2012.

The amounts in the above table under long-term debt are not charged to our results of operations, but are reflected on our Balance Sheet and Statement of Cash Flows. Interest associated with this debt is recorded under financing charges on our Statement of Operations or in our capital programs, but these financing charges are not reflected in the above table. Payments in respect of operating leases and our outsourcing agreement with Inergi are recorded under operation, maintenance and administration costs on our Statement of Operations or in our capital programs.

RELATED PARTY TRANSACTIONS

Related party transactions primarily consist of our transmission revenues received from, and our power purchase payments made, to the IESO, which is a related party by virtue of its status as an agency of our shareholder, the Province. The year-over-year changes related to these amounts are described more fully in our discussion of our transmission revenues and purchased power costs. Other significant related party transactions include our dividends, which are paid to the Province and our payments in lieu of corporate income taxes, which are paid or payable to the Ontario Electricity Financial Corporation. In January 2010, we purchased $250 million Province of Ontario Floating Rate Notes, maturing on November 19, 2014 as a form of alternate liquidity to supplement our bank credit facilities.

CONSIDERATIONS OF CURRENT ECONOMIC CONDITIONS

Pension

During the first six months of 2010, the deferred pension asset reported on our balance sheet decreased by $32 million to $392 million. We contributed $59 million into our pension plan and incurred $91 million in net periodic pension benefit cost. Contributions for 2010, 2011 and 2012 will be based on an actuarial valuation effective December 31, 2009 to be filed later this year and will depend on future investment returns, changes in benefits and actuarial assumptions. Based on current factors, we currently estimate our pension contributions to be approximately $140 million annually starting in 2010, and variable in 2011 and 2012 based on the level of pensionable earnings. Contributions for 2013 will be based on an actuarial valuation effective December 31, 2012.

As a result of recent financial market volatility, our pension plan experienced a negative return in the second quarter of about 4.6%, resulting in a negative return of approximately 2.6% on a year-to-date basis. The return was affected primarily by negative performance of equity investments following uncertainty in the European marketplace, as well as the resulting uncertainty surrounding the robustness of the economic recovery in North America. This negative impact on the Fund's return was partially offset by the strong performance of its fixed income holdings.

The pension fund has broad exposure from its investments in domestic and international equity markets, as well as in fixed income markets. The overall exposure of the fund reflects its holdings across a number of sectors, and a well-diversified portfolio to support long-term objectives.

We continue to monitor our financial risks, including credit risk.

STATUS OF OUR TRANSITION TO INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

On February 13, 2008, the Canadian Accounting Standards Board (AcSB) confirmed that publicly accountable enterprises will be required to adopt IFRS in place of Canadian generally accepted accounting principles (GAAP) for interim and annual reporting purposes for fiscal years beginning on or after January 1, 2011, with comparative data also reported under IFRS. In anticipation of this decision, we commenced our IFRS conversion project in 2007.

The project has four separate phases: diagnostic, design and planning, solution development, and implementation. We completed the diagnostic phase in 2008. It involved a high level review and identification of the major differences between current GAAP and IFRS in all subject areas resulting in the identification of the areas of accounting difference with the highest potential to significantly impact our company.

In 2009, we completed the design and planning and the solution development phases of our project, including substantial completion of all our policy analyses. We are currently engaged in the implementation phase which is the final phase of our project. We are currently tracking our comparative results under IFRS, assuming that the recognition of regulatory assets and liabilities will be permitted. We are concurrently developing plans to support accounting and business processes should rate-regulated accounting be discontinued. Our teams continue to monitor progress relative to key milestones, monitor developments of both the International Accounting Standards Board (IASB or the Board) and the AcSB, update recommendations and develop financial reports. We continue to have recurring dialogue with our external auditors about possible outcomes of our project.

We continue to evaluate the impacts of current and prospective IFRS on all of our business activities, including those of our subsidiaries and the impact on our entity-wide information system. We are simultaneously analyzing the impacts of changes on our disclosure controls and internal controls over financial reporting, our debt covenants and our performance measures. We continue to provide formal communications to our employees. We have completed numerous staff training sessions and will plan for future training sessions as standards continue to evolve.

Accounting Policies

During 2009, both the Public Sector Accounting Board (PSAB) and the Canadian Securities Administrators' (CSA) staff confirmed that companies such as Hydro One will be required to adopt IFRS in 2011. On December 14, 2009, the PSAB issued an exposure draft proposing to remove the requirement for government organizations adhering to IFRS to also apply additional public sector financial reporting standards, currently Public Sector Accounting Handbook Section 3270. The effective date for the proposed changes is January 1, 2011.

The areas with the highest potential to significantly impact our company upon conversion to IFRS, identified during the diagnostic phase, are regulatory assets and liabilities, fixed assets, payments in lieu of corporate income taxes, employee future benefits, as well as initial adoption of IFRS under the provisions of IFRS 1, *First-Time Adoption of IFRS* (IFRS 1). The IASB's project on rate-regulated activities (RRA) will have an impact on the accounting choices available in all of these areas.

In December 2008, the IASB added a project on RRA to its agenda. In July 2009, the IASB issued an exposure draft detailing its proposals for standards for the accounting of RRA. The exposure draft allows for the continued recognition of regulatory assets and liabilities on the Balance Sheet. In-scope assets and liabilities are proposed to be carried at the net present value of the expected future cash flows. The exposure draft makes an exception to the requirements of other IFRS standards by allowing capitalization of otherwise ineligible costs within fixed assets and intangible assets on the basis of the inclusion of these costs in rate base. The IASB requested comments from interested observers on the exposure draft. We responded to the IASB's request for comment on November 24, 2009. The IASB received approximately 150 responses to its request for comment, which were very diverse in their opinions. As a result, the IASB staff postponed presenting their analysis of the responses to the IASB, originally scheduled for January, to the Board's February meeting. The presentation to the IASB in February included options for the next steps of the project.

The Board decided tentatively to finalize the transition relief for first-time adopters. The transition relief proposed offers an optional exemption for a first-time adopter with RRA to use the carrying amount of fixed assets or intangible assets as deemed cost on the transition date when the carrying amount includes costs that would not otherwise qualify for capitalization. On May 6, 2010, the IASB issued the omnibus *Improvements to IFRSs*, which included the expected amendment to IFRS 1 applicable to entities with RRA. We expect to elect this exemption for our regulated businesses.

The IASB directed its staff to continue its research and analysis and to focus on the key issue of whether regulatory assets and liabilities exist in accordance with the current IFRS framework and whether they are consistent with other standards. The IASB met twice on July 20 and July 22, 2010 to further discuss the proposals of the rate-regulated accounting project. The IASB did not arrive at any decision and decided to continue its analysis and outreach activities on the project. Subsequently, the AcSB met on July 23, 2010 and decided to propose an interim relief for rate-regulated entities by permitting them to defer their IFRS implementation date to January 1, 2013, which is pending approval by the CSA. The AcSB released an exposure draft on July 28, 2010. Hydro One intends to respond to the exposure draft. Given the recent proposed deferred transition date, we are assessing next steps. We will continue to assess the IASB's deliberation on the project. At this time, there is uncertainty as to how the OEB will respond. If rate-regulated accounting were not permitted, the discontinuance would result in a write-off of regulatory assets and regulatory liabilities for a net reduction to retained earnings of approximately $339 million as at December 31, 2009.

In-Progress Construction and Development

Under current IFRS, there is a significant difference to Canadian GAAP in terms of what costs can be capitalized to in-progress construction and development projects. The impact of this difference on our financial statements cannot reasonably be estimated until greater clarity is provided by the IASB on the future direction of its RRA project. We will continue to assess the outcome of the IASB's project and update the transition date impact on our financial statements.

Employee Future Benefits

Given that the RRA project has not been finalized at this point, it is unclear at this time whether the continuation of accounting for expenditures related to employer-sponsored pension plans on a cash basis would be permissible. Regulatory assets and liabilities, representing the cumulative difference between our company's pension contributions accounted for on a cash basis at the direction of the regulator, and the costs that would be recognized on an accrual basis under Canadian GAAP, may not meet the definition of assets or liabilities under IFRS and hence may require de-recognition at the IFRS transition date. Similarly, we are assessing our options with respect to the recognition of accumulated, unamortized actuarial gains and losses associated with employment benefits. Currently, the possible alternatives to account for these pension and other employee benefit amounts include charging unamortized actuarial gains and losses immediately upon adoption under IFRS 1 or recognizing an adjustment to those amounts retrospectively to comply with IAS 19, *Employee Benefits.* Our policy choice may be contingent upon the outcome of the RRA project. The impact of using IFRS 1 as at December 31, 2009 would be a change to retained earnings of $852 million.

In April 2010, the IASB published an exposure draft, *Defined Benefit Plans (Proposed amendments to IAS 19 Employee Benefits),* with significant implications for both financial position and income reporting. Deferred recognition of actuarial gains and losses would be eliminated and instead all changes in the defined benefit obligation and in the fair value of plan assets would be recognized in the statement of comprehensive income when those changes occur. The exposure draft also proposed a new presentation approach where the changes in the defined benefit obligation and the fair value of plan assets would be segregated and separately disclosed as service cost, finance cost and re-measurement adjustments. Service cost and finance cost components would be recognized in the statement of operations. The re-measurement adjustments representing actuarial gains and losses would be recognized as part of other comprehensive income. As per the IASB's revised timeline, the final standard is expected in the first quarter of 2011 with an effective date not earlier than 2013. The new accounting standard when adopted in 2013 or in later years will result in higher volatility in the statement of comprehensive income due to the recognition of the full amount of actuarial gains and losses.

Payments in Lieu of Corporate Income Taxes

We recognize future tax assets and liabilities in accordance with Canadian Institute of Chartered Accountants Handbook section 3465, *Income Taxes*, which was amended effective January 1, 2009 to bridge the convergence to IFRS. As such, we have determined that there is no potential for a significant impact for this class of transactions based upon contingent outcomes regarding transactions for payments in lieu of corporate income taxes. If the RRA project is adopted as is, we plan to continue to record taxes on a cash basis instead of the liability method for the regulated businesses. Currently, we expect to record differences in items credited or charged directly to equity, financial instruments and unused tax losses and unused tax credits. If rate-regulated accounting is not permitted, the impact on our provision for payments in lieu of corporate income taxes would be recognized using the liability method and there would be no regulatory accounts established for taxes to be recovered through future rates. As a result the provision for PILs as at December 31, 2009 would have been lower by approximately $46 million including the impact of a change in substantively enacted tax rates.

OEB Consultation

In May 2008, the OEB initiated a consultative process to determine the nature of any changes to regulatory reporting requirements in response to IFRS. The OEB held public meetings and a formal stakeholder conference in May 2009. We participated at each opportunity offered to the public to communicate with the OEB. On July 28, 2009, the OEB released some preliminary views on how regulatory reporting requirements will change in response to IFRS. The OEB has initiated a second phase of its consultative process to amend certain regulatory instruments. We are continuing to assess the impact of the OEB's report and other recommendations on our IFRS conversion project.

On February 24, 2010, the OEB issued a letter to all licensed electricity distributors and rate-regulated natural gas utilities for the purpose of clarifying the OEB's view released in July on accounting for overhead costs in the cost of new capital works effective January 1, 2011. The OEB stated in the letter that it would be requiring full compliance with IFRS requirements, including those in IAS 16, *Property, Plant and Equipment* (IAS 16), as applicable to non-regulated enterprises and only where the OEB authorizes specific alternative treatment for regulatory purposes is alternative treatment acceptable. We continue to assess this guidance in light of our rate applications and the AcSB's proposed delayed IFRS implementation date.

Internal Control over Financial Reporting and Disclosure Controls and Procedures

We are continuously analyzing the impacts of changes on our disclosure controls and procedures and internal controls over financial reporting as we proceed through our implementation of IFRS. Additional disclosure controls may be required to address first time adoption and additional internal controls may be required to implement changes in our accounting policies and to support our ongoing IFRS reporting requirements. Required changes to our control environment cannot be determined until such time as policy choices are finalized.

We have initiated the process of analyzing our current disclosure control and procedure and internal control documentation to identify changes required upon the adoption of IFRS. We have categorized each control process as low, medium or high-impact, based on the currently assessed risk of a major change being required upon implementation of IFRS. This ranking was completed in the fourth quarter of 2009. We completed updating the documentation for all of the low and medium-risk processes with IFRS implementation impact, including process documentation and risk and control matrices, during the second quarter. For our high-risk processes we are assessing timing for completion of our documentation revisions, subject to any decision made by the IASB on the RRA project. Process revisions on high-risk areas are being completed last due to the potential for impacts of the RRA project. Considering the proposed deferral in the IFRS implementation date and the uncertainties on the outcome of the project, we are assessing the completion date for the walkthroughs of the revised process and control documentation relating to low, medium and high-risk processes.

Financial Reporting Expertise

The project's formal governance structure includes a steering committee consisting of senior level management from finance, information technology, treasury and our operations organizations. Project status reporting is provided to senior executive management and to the Audit and Finance Committee of our Board of Directors on a quarterly basis, or more often as necessary.

The training of key finance and operational staff commenced in 2007 and has been on-going. Training has also been given to the Audit and Finance Committee and senior executive management to communicate the key differences between Canadian GAAP and IFRS, and to provide them with an overview of the key impacts conversion could have on our financial statements. These groups are updated as developments in IFRS continue. Due to the extensive staffing requirements associated with such a large-scale project, an external expert advisor was engaged to assist with our IFRS conversion project, from the planning phase through to implementation.

Business Activities

The company has the customary covenants normally associated with long-term debt. Among other things, our long-term debt covenants limit our permissible debt as a percentage of our total capitalization. Depending on the outcome of various exposure drafts under IFRS, we could undergo changes to our results that would impact our debt covenants. For example, covenants would be impacted as a result of de-recognition of regulatory assets and liabilities, accounting for expenditures related to employer-sponsored pension plans on an accrual basis versus a cash basis and the change in costs that are allowable versus disallowable for capitalization as part of the cost of self-constructed assets. As part of our IFRS transition project, we

have been analyzing the impacts of potential changes in accounting policy on our debt covenant and communicating potential scenarios and impacts analyses to our Audit and Finance Committee. Based on our calculations, we would remain in compliance with our debt covenants. However, we have met with our financial institutions and amended our credit agreement to consider the potential impacts that IFRS may have on our covenants. Specifically, the calculation of our debt to total capitalization ratio will be modified for certain items to factor IFRS impacts, such that the debt to total capitalization ratio is representative of what it was prior to IFRS. We will continue to monitor the impact of conversion on our debt covenants as IFRS develops and as we finalize our policy choices under IFRS.

Information Technology (IT) Systems

As part of an entity-wide system improvement project, many of our major financial systems were replaced in 2008 and 2009. To ensure that the future requirements of IFRS would be met, common team members were included within the governance structure of our IFRS project and the new entity-wide system implementation team. At the same time, members of the IFRS implementation team were involved in the design of our new entity-wide system. IT implications were identified and assessed during our diagnostic and design and planning stages of our IFRS project and were incorporated in the project's solution development stage. For example, the new system has been configured to track depreciation on a component level, based on the useful life of the asset, as currently required under IAS 16. The new system has also been configured to track allowable versus disallowable costs for capitalization under IAS 16. The system has been designed with the maximum flexibility given the uncertainty of rate-regulated accounting under the IASB's current project. Considering the proposed deferral in the IFRS implementation date and the uncertainties on the outcome of the project, we are assessing the degree of future required re-configurations in the new system.

DISCLOSURE CONTROLS AND INTERNAL CONTROLS OVER FINANCIAL REPORTING

In 2008, we began transitioning our major financial systems to a SAP enterprise-wide platform as part of the entity-wide information system replacement and improvement project. A formal project governance structure is in place to ensure an effective transition of the information technology systems and business processes. The governance structure includes a steering committee consisting of senior levels of management which reports to senior executive management and the Business Transformation Committee of the Board of Directors.

In 2008, we successfully implemented the first phase of the supply chain, asset and work management modules in SAP. In 2009, we successfully implemented various Finance, Human Resources, Payroll and Investment Management modules. The reporting tool Business Intelligence/Business Warehouse was also implemented. This implementation included new controls over Internal Controls over Financial Reporting and the replacement of other controls in the previous environment. Our process documentation has been updated and the design and effectiveness of the controls have been tested.

In compliance with the requirements of National Instrument 52-109, *Certification of Disclosure in Issuers' Annual and Interim Filings*, our Certifying Officers have reviewed and certified the Consolidated Financial Statements for the interim period ended June 30, 2010, together with other financial information included in our quarterly securities filings. Our Certifying Officers have certified that disclosure controls and procedures have been designed to provide reasonable assurance that material information relating to our company is made known within our company. Further, our Certifying Officers have also certified that internal controls over financial reporting have been designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements.

RECENT DEVELOPMENTS

2011-2012 Transmission Rate Application

On May 19, 2010, our subsidiary Hydro One Networks filed its rate application for 2011 and 2012 transmission rates. The application seeks the approval for a revenue requirement of approximately $1,446 million and $1,547 million for 2010 and 2011, respectively. This represents an estimated increase in rates of 15.7% and 9.8%, respectively, or 1.2% and 0.7% on an average customer's monthly bill. These increases primarily reflect system expansion and asset replacement needs, including the Bruce to Milton Transmission Reinforcement Project, and other increases in our work program requirements. The requested rate increases will also support investments in respect of the OPA's supply mix policies, which include the phase-out of coal-fired generation and investments to address aging infrastructure.

Midtown Toronto Project

On June 17, 2010, the OEB issued a decision approving, subject to conditions, our Leave-to-Construct application for our Midtown Toronto Project to refurbish the existing 115 kV transmission infrastructure which serves midtown Toronto and areas to the west.

Conservation and Demand Management (CDM) Targets

On June 22, 2010, the OEB provided notice under the *Ontario Energy Board Act, 1998* of the creation of a proposed CDM Code for electricity distributors. The new code proposes CDM targets for all licensed electricity distributors as directed by the Minister of Energy and Infrastructure earlier this year. The proposed allocation of the overall targets to our Company for the reduction of peak provincial electricity demand, and for the reduction of electricity consumption are 256 MW and 1,208 GWh, respectively over the four-year period beginning January 1, 2011. This represents approximately 19.2% and 20.1% of the total target savings allocated to all distributors, respectively.

SELECTED FINANCIAL HIGHLIGHTS AND RATIOS

	Three months ended June 30		Six months ended June 30	
(Canadian dollars in millions) (except as otherwise noted)	**2010**	**2009**	**2010**	**2009**
Net income	105	82	274	259
Net cash from operating activities	257	192	544	373
Capital expenditures	383	383	705	719
Basic and fully diluted earnings per common share *(Canadian dollars)*	1,005	781	2,655	2,505
Earnings coverage ratio[1]			2.15	2.42
Net asset coverage on long-term debt[2]			1.76	1.79
Total debt to capitalization[3]			57%	56%

[1] The earnings coverage ratio has been presented for the twelve months ended June 30, 2010 and June 30, 2009, respectively and has been calculated as the sum of net income, provision for payments in lieu of corporate income taxes and financing charges divided by the sum of financing charges, capitalized interest and cumulative preferred dividends.

[2] The net asset coverage on long-term debt ratio has been presented as at June 30, 2010 and December 31, 2009 and has been calculated as total assets minus total liabilities excluding long-term debt (including current portion) divided by long-term debt (including current portion).

[3] Total debt to capitalization ratio has been presented as at June 30, 2010 and December 31, 2009 and has been calculated as total debt divided by total debt plus total shareholder's equity.

APPOINTMENT OF JANET HOLDER

On July 1, 2010, Janet Holder was appointed to our Board of Directors. Ms. Holder is the President of Enbridge Gas Distribution and serves on the Board of Governors at the University of New Brunswick.

FORWARD-LOOKING STATEMENTS AND INFORMATION

Our oral and written public communications, including this document, often contain forward-looking statements that are based on current expectations, estimates, forecasts and projections about our business and the industry in which we operate and include beliefs and assumptions made by the management of our company. Such statements include, but are not limited to: expectations regarding energy-related revenues and profit; expectations regarding developments in the statutory and operating framework for electricity distribution and transmission in Ontario including amendments to codes, the impact of new regulatory guidelines and impacts of decisions from the OEB and other governing bodies; statements related to our rate applications and rate changes including estimated rate increases and expected impacts on an average customer's bill; statements regarding our future liquidity and capital resource requirements; expectations regarding our financing activities including our targeted long-term credit rating; expectations regarding the results of our on-going and planned projects and/or initiatives and their completion dates; statements regarding future capital expenditures, budgets and our investment plans; statements related to smart meters, time-of-use pricing and the associated smart grid; statements regarding contractual obligations and other commercial commitments; statements regarding future pension contributions and our pension plan; and statements related to IFRS, the IASB, the AcSB, our conversion to IFRS, planned courses of action, and expected impacts in

the event of a discontinuance of regulatory accounting. Words such as "expect", "anticipate", "intend", "attempt", "may", "plan", "will", "believe", "seek", "estimate", "goal", "aim", "target", and "continue", and variations of such words and similar expressions, are intended to identify such forward-looking statements. These statements are not guarantees of future performance and involve assumptions and risks and uncertainties that are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed, implied or forecasted in such forward-looking statements. We do not intend, and we disclaim any obligation to update any forward-looking statements, except as required by law.

These forward-looking statements are based on a variety of factors and assumptions including, but not limited to the following: no unforeseen changes in the legislative and operating framework for Ontario's electricity market; no unfavourable decisions from the OEB and other regulatory bodies concerning outstanding rate and other applications; no unforeseen changes in rate orders or rate structures for our distribution and transmission businesses; a stable regulatory environment; the preparation of business plans, comparative numbers, regulatory filings and future capital expenditures on the basis that rate-regulated accounting will continue to exist under IFRS; and no significant event occurring outside the ordinary course of business**.** These assumptions are based on information currently available to us, including information obtained from third-party industry analysts. Actual results may differ materially from those predicted by such forward-looking statements. While we do not know what impact any of these differences may have, our business, results of operations, financial condition and our credit stability may be materially adversely affected. Factors that could cause actual results or outcomes to differ materially from the results expressed or implied by forward-looking statements include, among other things:

- the risks associated with being controlled by the Province;
- the impact of the final outcome of the exposure draft on rate-regulated accounting;
- on-going discussions with the OPA regarding transmission project needs and priorities and distributed generation requirements;
- any opposition to and delays or denials of the requisite approvals and accommodations for our planned projects;
- the result of regulatory decisions regarding our revenue requirements, cost recovery and rates;
- investment returns, changes in benefits or actuarial assumptions;
- the risk that previously granted regulatory approvals may be subsequently challenged, appealed or overturned; and
- the impact of the GEA on our company and the costs and expenses arising there from.

We caution the reader that the above list of factors is not exhaustive. Some of these and other factors are discussed in more detail under "Risk Management and Risk Factors" in the 2009 annual Management's Discussion and Analysis (MD&A). You should review the section entitled "Risk Management and Risk Factors" in detail.

This MD&A is dated as at August 12, 2010. Additional information about our company, including our Annual Information Form, is available on SEDAR at www.sedar.com.

HYDRO ONE INC.
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (unaudited)

(Canadian dollars in millions)	Three months ended June 30		Six months ended June 30	
	2010	**2009**	**2010**	**2009**
Revenues				
Transmission	306	271	626	573
Distribution	842	803	1,825	1,789
Other	17	16	33	31
	1,165	1,090	2,484	2,393
Costs				
Purchased power	542	518	1,197	1,184
Operation, maintenance and administration	266	281	524	524
Depreciation and amortization	144	129	283	253
	952	928	2,004	1,961
Income before financing charges and provision for payments in lieu of corporate income taxes	213	162	480	432
Financing charges *(Note 6)*	88	74	173	146
Income before provision for payments in lieu of corporate income taxes	125	88	307	286
Provision for payments in lieu of corporate income taxes	20	6	33	27
Net income	105	82	274	259
Other comprehensive loss	-	-	-	-
Comprehensive income	105	82	274	259
Basic and fully diluted earnings per common share *(Canadian dollars)*	1,005	781	2,655	2,505

CONSOLIDATED STATEMENTS OF RETAINED EARNINGS (unaudited)

(Canadian dollars in millions)	Three months ended June 30		Six months ended June 30	
	2010	**2009**	**2010**	**2009**
Retained earnings, beginning of period	1,946	1,578	1,791	1,497
Change in accounting policy for the recognition of future income tax assets and liabilities *(Note 2)*	-	-	-	12
Net income	105	82	274	259
Dividends *(Note 3)*	(5)	(27)	(19)	(135)
Retained earnings, end of period	2,046	1,633	2,046	1,633

CONSOLIDATED STATEMENTS OF ACCUMULATED OTHER COMPREHENSIVE INCOME (unaudited)

(Canadian dollars in millions)	Three months ended June 30		Six months ended June 30	
	2010	**2009**	**2010**	**2009**
Accumulated other comprehensive income, beginning of period	(10)	(10)	(10)	(10)
Other comprehensive loss	-	-	-	-
Accumulated other comprehensive income, end of period	(10)	(10)	(10)	(10)

See accompanying notes to Consolidated Financial Statements.

HYDRO ONE INC.
CONSOLIDATED BALANCE SHEETS (unaudited)

(Canadian dollars in millions)	June 30, 2010	December 31, 2009
Assets		
Current assets:		
Short-term investments	147	-
Accounts receivable (net of allowance for doubtful accounts)	808	843
Regulatory assets	67	72
Materials and supplies	21	21
Future income tax assets	26	21
Other	17	16
	1,086	973
Fixed assets:		
Fixed assets in service	18,818	18,407
Less: accumulated depreciation	7,034	6,815
	11,784	11,592
Construction in progress	1,526	1,256
Future use land, components and spares	143	150
	13,453	12,998
Other long-term assets:		
Regulatory assets	1,104	1,018
Deferred pension asset	392	424
Intangibles (net of accumulated amortization)	206	218
Goodwill	133	133
Future income tax assets	19	18
Other assets	10	13
Long-term investment *(Note 4)*	248	-
	2,112	1,824
Total assets	16,651	15,795

See accompanying notes to Consolidated Financial Statements.

HYDRO ONE INC.
CONSOLIDATED BALANCE SHEETS (unaudited) (continued)

(Canadian dollars in millions)	June 30, 2010	December 31, 2009
Liabilities		
Current liabilities:		
Bank indebtedness	39	26
Accounts payable and accrued charges	760	800
Regulatory liabilities *(Note 5)*	100	100
Accrued interest	79	74
Short-term notes payable	-	55
Long-term debt payable within one year *(Note 6)*	450	600
	1,428	1,655
Long-term debt *(Note 6)*	7,030	6,281
Other long-term liabilities:		
Employee future benefits other than pension	962	940
Regulatory liabilities *(Note 5)*	465	489
Future income tax liabilities	785	693
Environmental liabilities	294	303
Long-term accounts payable and other liabilities	14	16
	2,520	2,441
Total liabilities	10,978	10,377
Shareholder's equity		
Preferred shares (authorized: unlimited; issued: 12,920,000)	323	323
Common shares (authorized: unlimited; issued: 100,000)	3,314	3,314
Retained earnings	2,046	1,791
Accumulated other comprehensive income	(10)	(10)
Total shareholder's equity	5,673	5,418
Total liabilities and shareholder's equity	16,651	15,795

See accompanying notes to Consolidated Financial Statements.

HYDRO ONE INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS (unaudited)

(Canadian dollars in millions)	Three months ended June 30		Six months ended June 30	
	2010	**2009**	**2010**	**2009**
Operating activities				
Net income	105	82	274	259
Environmental expenditures	(5)	(2)	(8)	(3)
Adjustments for non-cash items:				
Depreciation and amortization (excluding removal costs)	129	116	257	231
Retail settlement variance accounts	16	(1)	22	(3)
Special purpose charge *(Note 5)*	(10)	-	(10)	-
Regulatory liability refund account	(6)	(5)	(14)	(10)
Future income taxes	4	2	13	5
Smart meters	(4)	-	(11)	(1)
Rider 6 *(Note 5)*	(3)	(12)	(3)	(15)
Other regulatory asset and liability accounts	2	7	1	4
Amortization of debt costs	2	-	2	-
Rural and remote rate protection variance account	1	(7)	8	(9)
	231	180	531	458
Changes in non-cash balances related to operations	26	12	13	(85)
Net cash from operating activities	257	192	544	373
Financing activities				
Long-term debt issued	-	-	1,000	600
Long-term debt retired	(400)	-	(400)	(400)
Short-term notes payable	-	75	(55)	225
Dividends paid	(5)	(27)	(19)	(135)
Other	-	-	-	5
Net cash (used in) from financing activities	(405)	48	526	295
Investing activities				
Capital expenditures				
Fixed assets	(379)	(355)	(696)	(666)
Intangible assets	(4)	(28)	(9)	(53)
	(383)	(383)	(705)	(719)
Long-term investment	-	-	(250)	-
Other assets	12	3	19	15
Net cash used in investing activities	(371)	(380)	(936)	(704)
Net change in cash and cash equivalents	(519)	(140)	134	(36)
Cash and cash equivalents, beginning of period *(Note 8)*	627	120	(26)	16
Cash and cash equivalents, end of period	108	(20)	108	(20)

See accompanying notes to Consolidated Financial Statements.

1. BASIS OF PRESENTATION

These interim Consolidated Financial Statements do not conform in all respects to the disclosure requirements of Canadian generally accepted accounting principles for annual financial statements and should, therefore, be read in conjunction with the annual Consolidated Financial Statements of Hydro One Inc. (Hydro One or the Company) for the year ending December 31, 2009 which include information necessary or useful to understanding the Company's business and financial statement presentation. In particular, the Company's significant accounting policies and practices are presented as Note 2 to the annual Consolidated Financial Statements, and have been consistently applied in the preparation of these interim Consolidated Financial Statements.

The demand for electricity generally follows normal weather-related variations, and therefore the Company's energy-related revenues, all other things being equal, will tend to be higher in the first and third quarters than in the second and fourth quarters.

2. ACCOUNTING CHANGES

Change in Accounting Policy – Income Taxes

Effective January 1, 2009, the Company adopted amendments to the CICA Handbook Section 3465 - *Income Taxes* and CICA Handbook Section 1100 - *Generally Accepted Accounting Principles.* These amended sections establish new standards for the recognition, measurement, presentation and disclosure of future income tax assets and liabilities of rate-regulated enterprises.

For transactions and events that cause temporary differences between the tax basis of assets and liabilities and their carrying amounts for accounting purposes, the adoption of these amended sections requires the recognition of future income tax assets and liabilities, and correspondingly the recognition of regulatory liabilities and assets. The temporary differences primarily relate to capital cost allowance in excess of deprecation and employee future benefits other than pension.

As a result of adopting these amended standards, on January 1, 2009, the Company recognized current future income tax assets of $20 million, long-term future income tax assets of $12 million and long-term future income tax liabilities of $503 million. The Company also recognized corresponding current regulatory liabilities of $29 million, long-term regulatory liabilities of $14 million and long-term regulatory assets of $526 million. An adjustment to retained earnings of $12 million was recorded as at January 1, 2009 for the cumulative earnings impact of future income tax assets and liabilities as at December 31, 2008 that are excluded from the rate-setting process.

3. DIVIDENDS

During the three months ended June 30, 2010, preferred dividends in the amount of $5 million (2009 - $5 million) and common dividends in the amount of $nil (2009 - $22 million) were declared. During the six months ended June 30, 2010, preferred dividends in the amount of $9 million (2009 - $9 million) and common dividends in the amount of $10 million (2009 - $126 million) were declared.

4. LONG-TERM INVESTMENT

On January 22, 2010, Hydro One purchased $250 million in Province of Ontario Floating Rate Notes maturing on November 19, 2014 as a form of alternate liquidity to supplement its bank credit facilities. The Company has classified this investment as held-for-trading and therefore it has been recorded at fair value on the Consolidated Balance Sheet.

5. RATE-SETTING

Hydro One Networks Inc. (Hydro One Networks) Distribution Rate Decision

On April 9, 2010, the OEB released its decision regarding Hydro One Networks' rate application in respect of its Distribution Business. Subsequent to the decision, the OEB issued a final rate order which approved a revenue requirement of $1,146 million for 2010, reflecting a rate increase of approximately 9.3%. The proposed revenue requirement of $1,236 million for 2011 will be finalized following the Consensus Forecast in September 2010, when the 2011 return on equity is forecasted. As part of the decision, the OEB also approved certain distribution-related deferral account balances sought by Hydro One in its application including retail settlement variance accounts, regulatory asset recovery account I, retail cost variance accounts and smart meters. The OEB ordered that the approved balances be aggregated into a single regulatory account (Rider 6) to be recovered over an 18-month period from May 1, 2010 to December 31, 2011. Further, the OEB requested the establishment of deferral accounts which track the difference between the revenue recorded on the basis of Green Energy Plan expenditures incurred and actual recoveries received under the approved rider. The OEB also approved a deferral account to record the revenue requirement impact of the harmonization of the provincial sales tax (PST) and federal goods and services tax effective July 1, 2010. Any estimated PST savings in approved rates will be brought forward for disposition in future rate applications.

As part of the decision, the OEB required Hydro One Networks to track the dollar value of variances between the OEB-approved line losses recovered in rates and actual line losses, commencing January 1, 2010. The OEB directed Hydro One Networks to bring this analysis forward to its next cost of service proceeding for the issue to be further examined.

The OEB further directed Hydro One Networks to investigate the effects of Conservation and Demand Management (CDM) programs on its load forecast, and required the Company to prepare analysis specific to its CDM actual volume reductions compared to forecast.

Currently, no amounts have been recorded for distribution lines losses and CDM. Management will continue to assess whether the results of the analysis in these areas requires the recognition of a regulatory liability.

Special Purpose Charge (SPC)

On April 9, 2010, the OEB issued a letter to all electricity distributors regarding the SPC Assessment under Section 26.1 of the *Ontario Energy Board Act, 1998*. The SPC has been established to enable the recovery of the expenses incurred and the expenditures made by the Ministry of Energy and Infrastructure (MEI) in respect of its energy conservation and renewable energy programs.

Along with the OEB's letter, the MEI set out the amount that Hydro One was assessed for the SPC, amounting to approximately $11.1 million. This amount was recorded in the OEB established variance account for the SPC, which captures any difference in the amount remitted for the SPC assessment and the cumulative amounts recovered from customers on account of the assessment. Recovery of the SPC assessment from customers commenced May 1, 2010, and is recovered on a volumetric basis.

6. LONG-TERM DEBT

During the six months ended June 30, 2010, Hydro One issued additional notes under the Company's Medium-Term Note Program.

The first issue on January 22, 2010 was an additional offering of 3.13% notes with a principal amount of $500 million. The notes mature on November 19, 2014 and were originally issued on November 19, 2009 for $250 million, bringing the total amount outstanding for this issue to $750 million.

The second issue on March 15, 2010 was an offering of 4.40% notes with a principal amount of $300 million. The notes mature on June 1, 2020.

The third issue on March 15, 2010 was an additional offering of 5.49% notes with a principal amount of $200 million. The notes mature on July 16, 2040 and were originally issued on July 16, 2009 for $300 million, bringing the total amount outstanding for this issue to $500 million.

On January 22, 2010, Hydro One entered into two $250 million notional principal amount fixed-to-floating interest rate swaps to convert $500 million of Hydro One's 3.13% coupon note maturing November 19, 2014, into three-month variable rate debt. The Company designated these swaps as fair value hedges associated with interest rate risk with the changes in fair value recognized in the Consolidated Statement of Operations for the period, along with changes in the fair value of the fixed rate note that is attributable to the hedged risk. To the extent the hedge is ineffective, the ineffective amount is recognized immediately to financing charges in the Consolidated Statement of Operations, and this amount was insignificant for the period.

In the second quarter, the Company entered into four forward rate agreements in order to lock-in four interest rate resets on the floating rate it pays on $500 million of floating rate debt, with settlement dates of May 19, 2010, June 3, 2010, August 19, 2010 and September 3, 2010 respectively. The four forward rate agreements were classified as held-for-trading and measured at fair value. The cash settlements on the first and second forward rate agreements were not significant and were made by the Company on May 19 and June 3, 2010 respectively. As at June 30, 2010, the fair value of the third and fourth forward rate agreements were losses of approximately $131 thousand and $139 thousand, respectively. These marked to market losses were recorded in the second quarter.

7. EMPLOYEE FUTURE BENEFITS

Total benefit costs are as follows:

	Three months ended June 30		Six months ended June 30	
(Canadian dollars in millions)	**2010**	**2009**	**2010**	**2009**
Pension				
Net periodic benefit cost	46	33	91	65
Pension fund contribution	29	27	59	56
Less: Portion attributable to labour and capitalized as part of the cost of fixed assets	12	10	24	22
Charged to results of operations	17	17	35	34
Employee Future Benefits Other than Pension				
Net periodic benefit cost	23	20	45	40
Less: Portion attributable to labour and capitalized as part of the cost of fixed assets	9	8	18	16
Charged to results of operations	14	12	27	24

8. CONSOLIDATED STATEMENTS OF CASH FLOWS

For the purposes of the Consolidated Statements of Cash Flows, "cash and cash equivalents" refers to the Consolidated Balance Sheet items "short-term investments" and "bank indebtedness."

9. SEGMENTED REPORTING

Hydro One has three reportable segments:

- The Transmission Business, which comprises the core business of providing transportation and connection services, is responsible for transmitting electricity throughout the Ontario electricity grid;
- The Distribution Business, which comprises the core business of delivering and selling electricity to customers; and
- An "other" segment primarily consisting of a telecommunications business.

The designation of segments is based on a combination of regulatory status and the nature of the products and services provided. Segment information on the above basis is as follows:

Three months ended June 30 (Canadian dollars in millions)	**Transmission**	**Distribution**	**Other**	**Consolidated**
2010				
Segment profit				
Revenues	306	842	17	1,165
Purchased power	-	542	-	542
Operation, maintenance and administration	103	148	15	266
Depreciation and amortization	66	75	3	144
Income (loss) before financing charges and provision for payments in lieu of corporate income taxes	137	77	(1)	213
Financing charges				88
Income before provision for payments in lieu of corporate income taxes				125
Capital expenditures	209	174	-	383
2009				
Segment profit				
Revenues	271	803	16	1,090
Purchased power	-	518	-	518
Operation, maintenance and administration	120	147	14	281
Depreciation and amortization	57	69	3	129
Income (loss) before financing charges and provision for payments in lieu of corporate income taxes	94	69	(1)	162
Financing charges				74
Income before provision for payments in lieu of corporate income taxes				88
Capital expenditures	218	163	2	383

Six months ended June 30 (Canadian dollars in millions)	**Transmission**	**Distribution**	**Other**	**Consolidated**
2010				
Segment profit				
Revenues	626	1,825	33	2,484
Purchased power	-	1,197	-	1,197
Operation, maintenance and administration	210	285	29	524
Depreciation and amortization	130	148	5	283
Income (loss) before financing charges and provision for payments in lieu of corporate income taxes	286	195	(1)	480
Financing charges				173
Income before provision for payments in lieu of corporate income taxes				307
Capital expenditures	404	300	1	705

Six months ended June 30 (Canadian dollars in millions)	**Transmission**	**Distribution**	**Other**	**Consolidated**
2009				
Segment profit				
Revenues	573	1,789	31	2,393
Purchased power	-	1,184	-	1,184
Operation, maintenance and administration	223	274	27	524
Depreciation and amortization	115	133	5	253
Income (loss) before financing charges and provision for payments in lieu of corporate income taxes	235	198	(1)	432
Financing charges				146
Income before provision for payments in lieu of corporate income taxes				286
Capital expenditures	405	311	3	719

(Canadian dollars in millions)	**June 30, 2010**	**December 31, 2009**
Total assets		
Transmission	9,438	9,118
Distribution	6,650	6,516
Other	563	161
	16,651	15,795

All revenues, costs and assets, as the case may be, are earned, incurred or held in Canada.

10. COMPARATIVE FIGURES

The comparative unaudited interim Consolidated Financial Statements have been reclassified from statements previously presented to conform to the presentation of the June 30, 2010 unaudited interim Consolidated Financial Statements.

CONFIDENTIAL
EXECUTION COPY

May 6, 2010

Hydro One Inc.
483 Bay Street
South Tower, 8th Floor
Toronto, Ontario
M5G 2P5

Attention: Ali Suleman, Vice President and Treasurer

Dear Sirs/Mesdames:

Re: C$1,250,000,000 Credit Facility – Commitment Letter

You (the "**Borrower**") have requested that RBC Capital Markets, Canadian Imperial Bank of Commerce ("**CIBC**") and TD Securities (collectively "we" or the "**Arrangers**") agree to structure, arrange and syndicate a C$750,000,000 increase in the existing C$500,000,000 senior revolving term credit facility (the "**Existing $500mm Facility**") for an aggregate principal amount of up to C$1,250,000,000 (the Existing $500mm Facility, as so increased, the "**Credit Facility**"). The entering into of, and borrowing under, the Credit Facility and the other transactions contemplated hereby are herein, collectively, the "**Transactions**").

It is agreed that each of the Arrangers will act as co-lead arrangers and joint bookrunners and Royal Bank of Canada ("**RBC**") will act as the sole and exclusive administrative agent (the "**Administrative Agent**") and that CIBC and TD Securities shall act as Co-Syndication Agents for the Credit Facility. You agree that no other agents, co-agents or arrangers will be appointed, no other titles will be awarded and no compensation (other than that expressly contemplated by the Term Sheet and the Fee Letters referred to below) will be paid in connection with the Credit Facility unless you and we shall so agree.

Based upon the foregoing, each of RBC, CIBC and The Toronto-Dominion Bank ("**TD**"), respectively, are pleased to advise you of their commitment (either on behalf of itself or one or more affiliates) to lend to the Borrower up to C$375,000,000 of the Credit Facility each, upon and subject to the terms and conditions set forth or referred to herein and in the summary of terms and conditions annexed hereto as Appendix "A" (the "**Term Sheet**"), which is incorporated herein by reference.

We intend to syndicate the Credit Facility as contemplated by the Term Sheet to a group of financial institutions (together with the Arrangers or their respective affiliates, the "**Lenders**") identified by us in prior consultation with you. The Arrangers intend to commence syndication efforts promptly upon the execution of this Commitment Letter, and you agree to actively assist

each of the Arrangers in completing a syndication satisfactory to you and us. Such assistance shall include (a) your using commercially reasonable efforts to ensure that the syndication efforts benefit from your existing lending relationships, (b) direct contact between senior management and advisors of the Borrower and the proposed Lenders, (c) the hosting, if necessary, with the Arrangers, of one or more meetings of prospective Lenders and (d) as set forth below, commercially reasonable assistance in the preparation of materials to be used in connection with the syndication.

The Arrangers will, in prior consultation with you, manage all aspects of the syndication, including decisions as to the selection of institutions to be approached and when they will be approached, when their commitments will be accepted, which institutions will participate, the allocations of the commitments among the Lenders and the amount and distribution of fees among the Lenders. In addition, the allocation of any over subscription shall be as determined by the Arrangers in consultation with the Borrower. In their capacity as arrangers, each of the Arrangers will have no responsibility other than to arrange the syndication as set forth herein and shall in no event be subject to any fiduciary or other implied duties. Additionally, the Borrower acknowledges and agrees that, in their capacities as arrangers, none of the Arrangers is advising the Borrower as to any legal, tax, investment, accounting or regulatory matters in any jurisdiction. The Borrower shall consult with its own advisors concerning such matters and shall be responsible for making its own independent investigation and appraisal of the transactions contemplated hereby, and the Arrangers shall have no responsibility or liability to the Borrower with respect thereto. Any review by the Arrangers of the Borrower, the transactions contemplated hereby or other matters relating to such transactions will be performed solely for the benefit of the Arrangers and shall not be on behalf of the Borrower.

To assist each of the Arrangers in its syndication efforts, you agree promptly to prepare and provide to the Arrangers all material information with respect to the Borrower and the transactions contemplated hereby, as we may reasonably request in connection with the arrangement and syndication of the Facility. You hereby represent and covenant that all information (the "**Information**") that has been or will be made available to the Arrangers by you or any of your representatives is or will be, when furnished, complete and correct in all material respects and does not or will not, when furnished, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements contained therein not materially misleading in light of the circumstances under which such statements are made. You understand that in arranging and syndicating the Facility we may use and rely on the Information without independent verification thereof.

As consideration for, and in connection with, each of the Arrangers' commitment hereunder and agreement to perform the services described herein, including the role of RBC as Administrative Agent, you agree to pay, without duplication, the nonrefundable fees set forth in Appendix I to the Term Sheet and in the Upfront Fee Letter dated the date hereof and delivered herewith and in the existing Administrative Agency Fee Letter dated December 15, 2009 (collectively, the "**Fee Letters**").

The commitment of each of the Arrangers to provide a portion of the Credit Facility and their respective agreements to provide the services described herein (including, in the case of RBC, as Administrative Agent) are expressly subject to (i) there not having occurred a material adverse

change in the business, operations, properties, assets, financial condition, contingent liabilities, prospects or material agreements of the Borrower, from those conditions in existence on September 30, 2009, as determined by the Arrangers, acting reasonably; (ii) the Arrangers shall not have become aware of any information or other matter which is inconsistent in any material and adverse manner with any information or other matter disclosed to the Arrangers by or on behalf of the Borrower, its representatives or advisers; (iii) the negotiation, preparation and execution of definitive documentation for the Credit Facility in form and substance consistent with the terms of this commitment letter and the Term Sheet; and (iv) satisfaction of the other terms and conditions set forth or referred to herein and in the Term Sheet and in the final credit agreement as contemplated in the Term Sheet.

To induce the Arrangers to provide their respective commitments to the Borrower, the Borrower hereby agrees that (i) all reasonable expenses (including the legal fees and expenses of their legal counsel) incurred by the Arrangers and the Administrative Agent or any of their affiliates in connection with the Transactions shall be for the account of the Borrower whether or not the Credit Facility is made available or definitive documents in respect thereof are executed or delivered and (ii) it shall pay all fees at the times and in the manner set out in the Term Sheet and the Fee Letters. The Borrower further agrees to indemnify and hold harmless each of the Arrangers and their respective affiliates and each director, officer, employee and agent thereof (each of the foregoing an "**indemnified person**") from and against any and all actions, suits, proceedings (including any investigation or inquiry), claims, losses, damages, liabilities or expenses of any kind or nature whatsoever (other than loss of profits) which may be incurred by or asserted against any such indemnified person as a result of or arising out of this commitment letter or the Transactions and, upon demand, to pay and reimburse each indemnified person for any reasonable legal or other out-of-pocket expenses incurred in connection with investigating, defending or preparing to defend any such action, suit, proceeding (including any inquiry or investigation) or claim (whether or not any such person is a party to any action or proceeding out of which any such expenses arise), provided that the Borrower shall not have any obligation to indemnify any indemnified person for any of the foregoing to the extent determined by a judgment of a court of competent jurisdiction to have arisen from its gross negligence, wilful misconduct or fraud or as a result of the default by such indemnified person of its obligations under this commitment letter. This commitment letter is addressed solely to the Borrower and none of the Arrangers shall have any liability to the Borrower or any other person for any consequential damages, which may be alleged as a result of this commitment letter or any of the Transactions.

This commitment letter may be executed in counterparts (including by way of facsimile) and shall be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable therein.

Definitive documentation in respect to the Credit Facility shall be finalized on or prior to June 30, 2010 or such other date as agreed to between the Arrangers and the Borrower, failing which the obligation of the Arrangers to make the Credit Facility available to the Borrower shall terminate.

The Borrower is not authorized to show or circulate this commitment letter or the Term Sheet or the Fee Letters to any other person or entity (other than their legal and financial advisors in

connection with the evaluation hereof) until such time as the Borrower has accepted this commitment letter as provided in the immediately succeeding paragraph. Without in any way limiting the foregoing, in the event that the Borrower shows or circulates the terms of this commitment letter or the Term Sheet or the Fee Letters to any other person or entity in contravention of this paragraph, the Borrower shall be deemed to have accepted the terms of this commitment letter and the Term Sheet. This commitment letter is not assignable by the Borrower without the prior written consent of the Arrangers, and any attempted assignment shall be null and void.

This commitment letter may not be amended or waived except by an instrument in writing signed by the Borrower and the Arrangers. This commitment letter (including the Term Sheet) and the Fee Letters are the only agreements that have been entered into among the parties hereto with respect to the Credit Facility and set forth the entire understanding of the parties with respect thereto.

Until such time as this commitment letter has been accepted by the Borrower, neither this commitment letter nor the Term Sheet nor the Fee Letters may be considered or referred to as a commitment by the Arrangers to provide or arrange the Credit Facility or any portion thereof on these or any other terms.

If the Borrower is in agreement with the foregoing, please sign and return to the Arrangers by way of electronic copy of this commitment letter, by no later than 5:00 p.m. (Toronto time) on May 7, 2010, failing which the commitments and agreements on the part of the Arrangers as set out herein will expire.

[SIGNATURE PAGES FOLLOW]

Yours truly,

ROYAL BANK OF CANADA

Per: _____

TIMOTHY P. MURRAY
AUTHORIZED SIGNATORY

CANADIAN IMPERIAL BANK OF COMMERCE

Per: _____
Raj Khanna
DIRECTOR

_____
Peter A. Mastromarini
Managing Director

THE TORONTO-DOMINION BANK

Per: _____

Gary Nevison
Managing Director

Rahim Kabani
Vice President

Accepted and agreed this 7th day of May, 2010.

HYDRO ONE INC.

By: _____
Name: ALI R. SULEMAN
Title: VICE PRESIDENT and TREASURER.

By: _____
Name:
Title:

Appendix A

Please see attached.

HYDRO ONE INC.
CDN$1,250,000,000 SYNDICATED THREE-YEAR CREDIT FACILITY

SUMMARY OF TERMS & CONDITIONS

FOR DISCUSSION PURPOSES ONLY, SUBJECT TO CREDIT APPROVAL

*This Summary of Terms and Conditions ("**Summary**") is for convenience of reference only and shall not be considered to be exhaustive as to the final terms and conditions which will govern the financing. This Summary is for the confidential use of Hydro One Inc. and is not to be disclosed by the Borrower or the Arrangers to any third party (other than advisors, the permitted assignees and participants of the Arrangers or as required by law) without the prior consent of the Arrangers or the Borrower, as applicable. This summary is delivered for discussion purposes only and is not a binding commitment of the Arrangers or Hydro One Inc.*

Definitions:	References herein to the "Existing Bank Facilities" means the C$750mm credit facility with RBC as agent, under the second amended and restated credit agreement dated August 10, 2007, as amended from time to time (the "**Existing $750mm Facility**") and the C$500mm credit facility with RBC as agent, under the credit agreement dated February 2, 2010 (the "**Existing $500mm Facility**"). Capitalized terms not otherwise defined herein shall have meanings similar to those given to them in the Existing $500mm Facility.
Borrower:	Hydro One Inc. (the "**Borrower**").
Designated Subsidiaries:	The Borrower may designate certain subsidiaries as "**Designated Subsidiaries**" for the purposes of the Credit Facility which, it is anticipated, shall include all of the Borrower's material subsidiaries existing as of the Closing Date. After the Closing Date, the Borrower may designate any of its subsidiaries which is engaged in the transmission, transformation or distribution of electricity as a Designated Subsidiary provided that no Default or Event of Default shall exist after giving effect to such designation and provided that no subsidiary may be designated as such if any of its shares are owned by a subsidiary that is not a Designated Subsidiary. The Borrower may elect that a Designated Subsidiary cease to be a Designated Subsidiary unless: (a) such Designated Subsidiary holds any debt of the Borrower or any shares or debt of any other Designated Subsidiary, (b) such Designated Subsidiary owns or has any ownership interest in any of the Borrower's or its subsidiaries' fixed assets used for the transmission, transformation and distribution of electricity in Ontario as at the Closing Date or any replacement thereof, or (c) a Default or Event of Default shall exist after giving effect to such election.
Credit Parties:	The Borrower and its Designated Subsidiaries.

Credit Facility:	Up to C$1,250,000,000 in aggregate (an increase of C$750,000,000 from the Existing $500mm Facility). For greater certainty, the Existing $750mm Facility will be terminated upon closing of the Credit Facility.
Administrative Agent:	Royal Bank of Canada ("**RBC**" or the "**Administrative Agent**")
Co-Lead Arrangers and Joint Bookrunners:	RBC Capital Markets, Canadian Imperial Bank of Commerce ("**CIBC**") and TD Securities (each individually an "**Arranger**" and collectively the "**Arrangers**").
Co-Syndication Agents:	CIBC and TD Securities.
Lenders:	Each of RBC, CIBC and The Toronto-Dominion Bank ("**TD**") shall commit to lend up to C$375 million per lender (including their respective commitments under the Existing $500mm Facility) and shall undertake on a best efforts basis to syndicate the remaining C$125 million to other financial institutions to be agreed by the Arrangers and the Borrower (each individually a "**Lender**" and collectively the "**Lenders**").
Purpose:	Commercial paper back-up and general corporate purposes.
Availability:	The Credit Facility shall be available by way of a renewable revolving credit facility for a 3 year period.
Extensions:	The 3-year term may be extended for successive one-year periods, by request of the Borrower and agreement of the Majority Lenders prior to the expiry of each anniversary of the Closing Date, provided that in no instance shall the term of the Credit Facility exceed 3 years at any one time.
Maturity Date:	3 years from the date of execution of the Credit Agreement and satisfaction of the conditions precedent (the "**Closing Date**"), as may be extended for one year periods thereafter (such date, as so extended from time to time, the "**Maturity Date**").
Borrowing Options:	The Credit Facility will be available in Canadian dollars ("C$" or "$") by way of: (a) Bankers' Acceptances in C$ ("**BAs**"); and (b) Prime Rate Loans in C$ ("**Prime Loans**") (individually a "**Borrowing**", and collectively the "**Borrowings**"). Borrowings by way of swing line loans shall be available under the Credit Facility in an amount not to exceed C$75,000,000 (the "Swing Line"). Such Borrowings under each Credit Facility shall be in minimum amounts of $10,000,000 and multiples of $1,000,000 in excess thereof, except that Borrowings under the Swing Line shall be in a minimum amount of $1,000,000. Conditions for Borrowings shall be substantially similar to those set out in the Existing $500mm Facility.

Fees and Interest Rates: As set forth in the attached Appendix I.

Conversion, prepayment and cancellation: Conversion, prepayment and cancellation shall be permitted on terms substantially similar to the Existing $500mm Facility.

Repayment at Maturity: On the Maturity Date the Borrower will repay all outstanding Borrowings under the Credit Facility and all undrawn portions of the Credit Facility will be cancelled.

Documentation: Documentation will consist of either an amendment to, or an amendment and restatement of, the credit agreement in respect of the Existing $500mm Facility (collectively, as so amended or amended and restated, the "**Credit Agreement**") and all other certificates and documents delivered in connection with the Credit Facility (collectively the "**Documents**") each in form and substance satisfactory to the Administrative Agent, the Lenders and the Borrower and their respective Counsel.

Representations and Warranties: Substantially similar to the Existing $500mm Facility, including but not limited to:

(a) each of the Credit Parties is a corporation which is duly incorporated and has the necessary corporate power and authority to carry on its business;

(b) the Documents have been duly authorized, executed and delivered, and constitute valid and enforceable obligations of the Borrower;

(c) the execution and delivery by the Borrower of the Credit Agreement will not result in any violation of any applicable shareholders' agreement, the articles or the bylaws of any Credit Party or result in a breach of any other loan, credit, note or similar agreement of any Credit Party;

(d) the annual audited and consolidated financial statements of the Borrower and the most recent quarterly unaudited consolidated financial statements of the Borrower (and similar financial statements prepared for the Borrower and its Designated Subsidiaries on both a consolidated and unconsolidated basis) delivered to the Administrative Agent and Lenders fairly represent the financial condition of the Borrower and its applicable subsidiaries on a consolidated and unconsolidated basis as of the date thereof and were prepared in accordance with Canadian generally accepted accounting principles;

(e) other than those disclosed to the Administrative Agent and the Lenders, there are no actions or suits against any Credit Party (i) where the amount claimed is greater than $50,000,000, or (ii) which could have a Material Adverse Effect;

(f) subject to specific representations regarding environmental laws as set forth below, each of the Credit Parties' businesses and operations are in compliance in all material respects with all applicable laws, and each of the Credit Parties have all necessary consents, licences, authorizations, approvals, orders, certificates and permits from, and have made all necessary filings (including tax filings, subject to good faith contestations) with, all federal, provincial, territorial, state and local authorities to conduct their business, all subject to materiality;

(g) representations with respect to ownership of assets, liens for borrowed money, effect of the transfer orders, assets transferred and reserve assets substantially similar to the Existing $500mm Facility;

(h) there has been no material adverse change to the business, operations or assets of the Credit Parties, taken as a whole, since September 30, 2009; none of the Credit Parties have any material contingent or other liabilities which are not disclosed on or referred to in the consolidated and unconsolidated financial statements furnished to the Administrative Agent and the Lenders or otherwise disclosed to the Administrative Agent and the Lenders in writing;

(i) neither the financial statements referred to in representation (d) above nor such other documentation as may be agreed upon furnished by the Credit Parties or on their behalf to the Administrative Agent and the Lenders in connection with this Agreement, contains any untrue statement of a material fact or omits a material fact necessary to make those statements not misleading, taken as a whole, and all those statements, taken as a whole, do not contain any untrue statement of a material fact or omit a material fact necessary to make the statements not misleading. There is no fact or circumstance which the Borrower has not disclosed to the Administrative Agent or the Lenders in writing which has or could have a Material Adverse Effect;

(j) except as disclosed on the consolidated and unconsolidated financial statements referred to in representation (d) above, or as otherwise disclosed to the Administrative Agent and the Lenders, none of the Credit Parties have any material unfunded pension or benefit plan liabilities;

(k) except as disclosed to the Administrative Agent and the Lenders, environmental compliance by, and absence of hazardous materials on or emitting from the property of, each of the Credit Parties, to extent non-compliance or presence of hazardous materials would have a Material Adverse Effect;

(l) representations shall be made with respect to labour matters, insurance, the corporate organization and ownership structure of the Borrower and its subsidiaries;

(m) listing of Designated Subsidiaries, and that the assets of all subsidiaries of the Borrower which are not Designated Subsidiaries shall have an aggregate book value at the Closing Date not exceeding 5% of the Borrower's total consolidated assets; and

(n) representations with respect to the indemnity documents and transfer orders substantially similar to the Existing $500mm Facility.

Conditions Precedent To Closing: Substantially similar to the Existing $500mm Facility, including but not limited to:

(a) execution and delivery of the Documents,

(b) officer's certificates evidencing the obtaining of all necessary corporate, governmental and other third party approvals, in form and substance satisfactory to the Administrative Agent and the Lenders, acting reasonably;

(c) accuracy of representations and warranties;

(d) no Default or Event of Default exists on the Closing Date or at the time of, or after giving effect to, the making of such Borrowing;

(e) satisfactory legal opinions from external counsel for the Borrower as reasonably requested by the Administrative Agent and the Lenders;

(f) execution and delivery of a letter from the Borrower to the Administrative Agent confirming cancellation of the Existing $750mm Facility;

(g) the Closing Date shall have occurred on or before June 30, 2010;

(h) other usual closing certificates and documents; and

(i) all fees payable in connection with the Credit Facility on or before the Closing Date shall have been paid to the Arrangers and the Administrative Agent.

Conditions Precedent To Borrowings: Substantially similar to the Existing $500mm Facility.

Covenants: Substantially similar to the Existing $500mm Facility, including but not

limited to:

Affirmative Covenants:

(a) punctually pay all sums when due hereunder;

(b) maintenance of corporate existence; conduct of business in a proper and efficient manner in all material respects including keeping proper books of account and records, obtaining and maintaining all material licenses, permits, and regulatory approvals; maintenance of property in a commercially reasonable and efficient manner provided that the foregoing will not prevent the decommissioning of property which in the Borrower's judgment is desirable in the conduct of its business and would not have a Material Adverse Effect;

(c) after a responsible officer of the Borrower becoming aware, provide prompt notice of any material adverse change to the business, operations or assets of the Credit Parties, taken as a whole, or any Default or Event of Default; provided the giving of such notice shall not shorten the cure period otherwise applicable to the Default or Event of Default described in such notice;

(d) make all material regulatory filings required by governmental and regulatory authorities including material change reports;

(e) compliance in all material respects with all applicable laws including without limitation, all environmental laws and obtain and maintain all necessary material environmental permits;

(f) maintain insurance in amounts, terms and coverage, or self insure, all in accordance with prudent industry practice;

(g) use all funds advanced solely for the purposes as defined; and

(h) reporting requirements which shall include separate statements prepared for (i) the Borrower on a consolidated basis and (ii) the Borrower and its Designated Subsidiaries on a consolidated and an unconsolidated basis (annual and unaudited only, in the case of unconsolidated statements), including provision of:

(i) audited annual financial statements within 120 days after each fiscal year end accompanied by a compliance certificate;

(ii) unaudited quarterly financial statements within sixty (60) days after each of the first three fiscal quarters of each fiscal year accompanied by a compliance certificate; and

(iii) with reasonable promptness, such other information regarding its operations, business, assets and financial condition as the Administrative Agent may reasonably

request.

Negative Covenants:

(a) except for Permitted Liens (to be defined substantially similarly to the Existing $500mm Facility), not to grant, create, assume or suffer to exist any lien affecting any of its properties, assets or other rights;

(b) not to sell, transfer, convey, lease or otherwise dispose of all or any material assets (for greater certainty, including any material fixed assets used for transmission, transportation and distribution of electricity) except (i) transfers on arm's length terms and conditions for fair market value consideration (including to a non-Designated Subsidiary), (ii) transfers between Credit Parties and, (iii) re-transfers under Section 134 of the Electricity Act, 1998;

(c) not to merge, amalgamate, consolidate or otherwise enter into any other similar form of business combination with any other person unless (a) such transaction would not result in a Material Adverse Effect or a Default or Event of Default, (b) the continuing entity resulting from such combination with the Borrower shall execute and deliver and obtain such further documentation and legal opinions as may be reasonably requested by the Administrative Agent, and (c) the continuing entity resulting from such combination with a Credit Party shall be deemed to be a Credit Party for the purposes of the Credit Facility;

(d) not to make any change whereby the nature of the business carried on by the Credit Parties taken as a whole would be materially altered;

(e) not to have a Debt to Total Capitalization ratio of greater than 0.75:1 at any time. For the purposes of this test, equity will be reduced by the value of any assets removed from the Credit Parties pursuant to a transfer order amendment under Section 134 of the Electricity Act, 1998 to the extent there is no compensation to the Credit Parties for such removal; and

(f) not to permit Debt of all Designated Subsidiaries, in aggregate, to exceed 10% of the value of total assets of all Designated Subsidiaries, in aggregate (subject to an exception substantially similar to that under the Existing $500mm Facility for pari passu ranking Debt).

Events of Default:

Substantially similar to the Existing $500mm Facility, including but not limited to:

(a) failure to pay when due any principal, or failure to pay within five (5) Business Days of the due date any interest, or failure to pay any fees or other amounts within 5 Business Days after

notice;

(b) breach by the Borrower of any other provisions of the Credit Agreement subject to (i) a cure period of 3 Business Days with respect to negative covenants, financial covenants and the covenant to give notice of Default, Event of Default, material adverse change or litigation, and (ii) a cure period of 20 days with respect to any other provision capable of remedy;

(c) representations or warranties false when made;

(d) cross default to monetary events of default under other indebtedness of the Credit Parties (excluding certain non-material Designated Subsidiaries) where the aggregate amount of such indebtedness is in excess of Cdn$50,000,000 and cross acceleration to non-monetary events of default under such indebtedness;

(e) a judgment in excess of $50,000,000 is made against a Credit Party (excluding certain non-material Designated Subsidiaries) in any proceeding and either (i) a writ, execution or attachment or similar process is levied against property of a Credit Party in respect of such judgement, or (ii) the judgment is not actively and diligently appealed and execution thereof stayed pending appeal within 30 days of the rendering of the judgement, or (iii) the judgement is not paid or otherwise satisfied within 30 days of the rendering of the judgement;

(f) the Borrower ceasing to be more than 50% owned by the Province of Ontario resulting in a ratings downgrade in a manner substantially similar to the Existing $500mm Facility;

(g) insolvency and bankruptcy related events of a Credit Party (subject to exception for non-material Designated Subsidiaries on terms substantially similar to the Existing $500mm Facility);

(h) any of the Indemnity Documents is amended in a manner materially adverse to the Borrower or the Credit Parties or ceases to be in effect; and

(i) any consents, authorizations, permits licences or agreements with respect to the reserve assets (as defined in the Existing $500mm Facility) are not successfully renegotiated, the Borrower has exhausted all its remedies with respect to the renewal or renegotiation of such items and as a result, it is reasonably likely that there would be a Material Adverse Effect.

Waivers and Amendments: Provisions to be consistent with the Existing $500mm Facility.

Expenses:	All reasonable out-of-pocket expenses of the Administrative Agent and the Arrangers (including but not limited to reasonable legal fees and disbursements) relating to the negotiation and preparation of the Credit Agreement and syndication and operation of the Credit Facility are for the account of the Borrower, regardless of whether or not the Credit Agreement is signed. All reasonable expenses of the Administrative Agent and Lenders in enforcing or preserving their rights under the Credit Agreement are for the account of the Borrower.
Taxes; Increased Costs; Assignments and Participations:	Provisions substantially similar to the Existing $500mm Facility, subject to certain usual and customary provisions for transactions of this type under current market conditions.
Indemnity:	Provisions substantially similar to the Existing $500mm Facility.
Governing Law:	Province of Ontario and/or Canada as applicable therein.
Counsel to the Arrangers, the Administrative Agent and the Lenders:	McMillan LLP
Counsel to the Borrower:	Osler Hoskin & Harcourt LLP

APPENDIX I
Fees and Interest Rates

Commitment Fees: Calculated on the unutilized, uncancelled committed amount of the Credit Facility, at the margins set forth below, during the period following the Closing Date and thereafter until the relevant maturity of the Credit Facility, on a 365 day basis, payable quarterly in arrears.

Other Fees: Subject to fee letters as agreed between the Borrower and the Arrangers, and the Borrower and the Administrative Agent, respectively.

Interest Rates and Fees Margins: The Commitment Fee, BA Stamping Fee Margins and Prime Rate Margins will be as outlined below which are denoted in basis points (bp):

Sr. Unsecured Debt Rating (S&P and Moody's)	*Commitment Fee-*	*BA Stamping Fee (Usage<25%)*	*BA Stamping Fee (Usage.≥ 25%)*	*Prime Rate (Usage<25%)*	*Prime Rate (Usage.≥ 25%)*
AA and Aa2, or higher	18.75	75	100	0.00	0.00
AA- and Aa3	21.25	85	110	0.00	10
A+ and A1	25.00	100	125	0.00	25
A and A2	31.25	125	150	25	50
A- and A3	37.50	150	175	50	75
BBB+ and Baa1	43.75	175	200	75	100
BBB and Baa2	56.25	225	250	125	150
BBB- and Baa3 or lower/unrated	68.75	275	300	175	200

The applicable margin shall be selected from the applicable grid based on the higher of the S&P and Moody's rating, except that if each of the ratings on the applicable grid indicate margins more than one row apart, the applicable margin will be calculated as the average of the two. If only one rating is available, the applicable margin shall be selected based on that rating. If neither rating is available the highest applicable margin shall prevail.

Any adjustment to such margins shall be calculated with effect from the publication date of any change to the ratings.

Overdue Payments: Past due payments shall accrue interest at the per annum interest rate for Prime Loans plus 1.00%.

May 6, 2010

Hydro One Inc.
483 Bay Street
South Tower, 8th Floor
Toronto, Ontario
M5G 2P5

Attention: Ali Suleman, Vice President and Treasurer

C$1,250,000,000 Three-Year Credit Facility - Upfront Fee Letter

Ladies and Gentlemen:

Reference is made to the C$1,250,000,000 Credit Facility Commitment Letter dated the date hereof among Royal Bank of Canada, Canadian Imperial Bank of Commerce, the Toronto-Dominion Bank, and you (the "**Commitment Letter**"). Capitalized terms used but not defined in this Fee Letter (and references to the "Borrower" and "you") have the meanings assigned thereto in the Commitment Letter (including the attachments thereto).

FEES

Upfront Fees. The Borrower shall pay a non-refundable upfront fee of 25 basis points of the increase in the amount of the Credit Facility (not to exceed $1,875,000 based on an increase in the Existing $500mm Facility of $750,000,000) to the Administrative Agent on the Closing Date, on behalf of the Lenders, to be allocated among the Lenders on a rateable basis according to their respective increased commitment allocations.

All fees payable hereunder shall be in addition to your obligations under the Commitment Letter and any other fee letter with the Administrative Agent.

GENERAL

You agree that, once paid, the fees and any part thereof payable hereunder shall be nonrefundable under any and all circumstances. All fees payable hereunder shall be paid in immediately available funds in Canadian dollars without set-off or counterclaim.

The provisions of this Fee Letter remain subject to your confidentiality obligations under the Commitment Letter.

It is understood and agreed that this Fee Letter shall not constitute or give rise to any obligation to provide any financing and that such an obligation will arise only under the Commitment Letter if accepted in accordance with its terms. This Fee Letter may not be amended or any provision hereof waived or modified except by an instrument in writing signed by each of the parties hereto. This Fee Letter shall be governed by, and construed in accordance with, the laws of the Province of Ontario and you and we waive any right to trial by jury in any action, proceeding or counterclaim (whether based on contract, tort or otherwise) arising out of or relating to this Fee Letter or the transactions contemplated hereby. This Fee Letter may be executed in any number of counterparts, each of which shall be an original and all of which, when taken together, shall constitute one agreement. Delivery of an executed counterpart of a signature page of this Fee Letter by electronic transmission shall be effective as delivery of a manually executed counterpart of this Fee Letter.

[SIGNATURE PAGES FOLLOW]

If the foregoing correctly sets forth our understanding, please indicate your acceptance of the terms hereof by signing in the appropriate spaces below and returning to us the enclosed duplicate originals hereof, whereupon this Fee Letter shall become a binding agreement among you and us.

Very truly yours,

ROYAL BANK OF CANADA

By: _____
Name:
Title: TIMOTHY P. MURRAY
AUTHORIZED SIGNATORY

By: _____
Name:
Title:

CANADIAN IMPERIAL BANK OF COMMERCE

By: _____

Name: Raj Khanna
Title: DIRECTOR

By: _____

Name:
Title: Peter A. Mastromarini
Managing Director

THE TORONTO-DOMINION BANK

By: _____
Name: Gary Nevison
Title: Managing Director

By: _____
Name:
Title: Rahim Kabani
Vice President

Agreed to and accepted this 7th day of May, 2010.

HYDRO ONE INC.

By: Ali R. Suleman
Name: ALI R. SULEMAN
Title: VICE PRESIDENT and TREASURER

By: _____
Name:
Title:

December 15, 2009

Hydro One Inc.
483 Bay Street
South Tower, 8th Floor
Toronto, Ontario
M5G 2P5

Attention: Ali Suleman, Vice President and Treasurer

$500,000,000 Three-Year Credit Facility - Arrangement Fee Letter

Ladies and Gentlemen:

Reference is made to the $500,000,000 Credit Facility Commitment Letter dated the date hereof among Royal Bank of Canada ("**RBC**"), Canadian Imperial Bank of Commerce and TD Securities as co-Lead Arrangers (collectively, the "**Arrangers**") and you (the "**Commitment Letter**"). Capitalized terms used but not defined in this Fee Letter (and references to the "Borrower" and "you") have the meanings assigned thereto in the Commitment Letter (including the attachments thereto).

FEES

Arrangement Fees. The Borrower agrees to pay to each of the Arrangers (or its designated affiliate) a non-refundable arrangement fee equal to 3 basis points of the maximum amount of the Credit Facility ($500,000,000), which fee shall be fully earned on the Closing Date and shall be allocated one-third to each Arranger. The entire amount of such arrangement fee will be due and payable in cash on the Closing Date.

Upfront Fees. The Borrower shall pay a non-refundable upfront fee of 45 basis points of the final amount of the Credit Facility (not to exceed $2,250,000 based on a final amount of $500,000,000) to the Administrative Agent on the Closing Date, on behalf of the

Lenders, to be allocated among the Lenders on a rateable basis according to their respective commitment allocations.

All fees payable hereunder shall be in addition to your obligations under the Commitment Letter and any other fee letter with the Administrative Agent.

GENERAL

You agree that, once paid, the fees and any part thereof payable hereunder shall be nonrefundable under any and all circumstances. All fees payable hereunder shall be paid in immediately available funds in Canadian dollars without set-off or counterclaim.

The provisions of this Fee Letter remain subject to your confidentiality obligations under the Commitment Letter.

It is understood and agreed that this Fee Letter shall not constitute or give rise to any obligation to provide any financing and that such an obligation will arise only under the Commitment Letter if accepted in accordance with its terms. This Fee Letter may not be amended or any provision hereof waived or modified except by an instrument in writing signed by each of the parties hereto. This Fee Letter shall be governed by, and construed in accordance with, the laws of the Province of Ontario and you and we waive any right to trial by jury in any action, proceeding or counterclaim (whether based on contract, tort or otherwise) arising out of or relating to this Fee Letter or the transactions contemplated hereby. This Fee Letter may be executed in any number of counterparts, each of which shall be an original and all of which, when taken together, shall constitute one agreement. Delivery of an executed counterpart of a signature page of this Fee Letter by electronic transmission shall be effective as delivery of a manually executed counterpart of this Fee Letter.

[SIGNATURE PAGE FOLLOWS]

Agreed to and accepted this 15th day of December, 2009.

HYDRO ONE INC.

By: _____
Name: Ali R. Suleman
Title: Vice President and Treasurer

By: _____
Name: Sandy Struthers
Title: Senior Vice President and
Chief Financial Officer

School Energy Coalition (SEC) INTERROGATORY #7 List 1

Interrogatory

Ref: [Ex. A/15/1] With respect to the report on Stakeholder Consultation

a. P. 17. Please provide a chart or graph showing the capital spending cycle, including where it has come from, and where it is expected to go in the future, and plotting where the Applicant is today on that cycle.

b. P. 17. Please provide a table showing the Shared Services OM&A allocated to each of Distribution and Transmission for each calendar year 2006-2012, as set out in each Distribution or Transmission rate application.

c. March 2, p. 6. Please explain the meaning of "partial in-service". Please confirm that no part of the Bruce to Milton line is expected to actually be in-service prior to December 31, 2012.

Response

a. Please refer to the chart below.

Transmission Capital Expenditures
($Millions)

	Historic			Bridge	Test	
Description	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Sustaining	210	280	300	308	424	443
Development	273	311	516	538	617	457
Operations	5	23	20	10	44	57
Total	**488**	**614**	**836**	**856**	**1,085**	**958**
Total % change (Year to Year)		26%	36%	3%	27%	-12%

b. Please find the requested tables showing 2006 – 2012 OM&A Shared Services for Transmission and Distribution respectively as submitted in our latest Tx application.

Shared Services OM&A – Transmission (millions)							
Description	**Historic**				**Bridge**	**Test**	
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Common Corporate Functions and Services	61.8	64.1	64.5	71.8	81.3	79.7	86.6
Asset Management	28.1	25.9	31.8	40.0	33.0	35.5	36.0
Information Technology	45.6	46.2	50.7	56.2	68.1	67.5	68.5
Cornerstone	2.2	2.7	1.5	4.0	-9.4	-12.5	-21.4
Cost of Sales	16.6	14.5	20.5	13.5	15.8	14.9	8.5
Other OM&A	-83.0	-72.5	-109.6	-114.7	-130.3	-138.3	-131.8
Total	**71.3**	**80.9**	**59.4**	**70.8**	**58.6**	**46.9**	**46.4**

Shared Services OM&A – Distribution (millions)							
Description	**Historic**				**Bridge**	**Test**	
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Common Corporate Functions and Services	51.5	53.2	61.1	69.7	73.8	72.1	72.6
Asset Management	21.8	18.9	15.2	19.3	36.7	39.4	39.8
Information Technology	45.5	51.4	56.8	71.1	77.2	78.3	79.3
Cornerstone	1.3	2.2	1.2	3.1	-4.6	-5.4	-7.7
Cost of Sales	6.6	6.9	9.1	5.1	9.7	9.8	5.3
Other OM&A	-105.9	-41.4	-80.8	-88.6	-121.5	-115.2	-110.3
Total	**20.7**	**91.1**	**62.6**	**79.7**	**71.2**	**79.0**	**79.0**

c. Hydro One assumes that the reference is to the bottom of p. 16 and the top of p. 17 of the referenced exhibit.

"Partial in-service" means that the costs, for "CWIP in ratebase" treatment and calculation of return on same, are included in ratebase. It does not mean that any portion of the asset is in service or that the costs are included in ratebase. The as-

spent costs are included in ratebase only on a notional basis for CWIP in ratebase treatment purposes.

To confirm, at this point in time, a portion of the Bruce to Milton line is expected to be placed into service prior to December 31, 2012.

School Energy Coalition (SEC) INTERROGATORY #8 List 1

Interrogatory

Ref: [Ex. A/11/1, p. 1]

Please provide copies of all directions from the shareholder since January 1, 2008 that are not already in the evidence.

Response

The following letters from Hydro One's shareholder are attached or referenced below:

a) Direction from the Minister of Energy and Infrastructure was received on September 21, 2009 and this document is in the evidence in Exhibit A, Tab 11, Schedule 4, Appendix A.

b) Direction was received from the Minister of Energy and Infrastructure on May 5, 2010 and this letter is attached in Exhibit I, Tab 1, Schedule 98.

Attachment 1 contains the following additional correspondence:

- July 14, 2010 – Public Sector Compensation Restraint
- July 7, 2010 – Access to Federal Government Accomodation
- March 26, 2010 – Public Sector Compensation Restraint to Protect Public Services Act, 2010
- March 23, 2010 – Travel, Meal and Hospitality Expenses Directive
- February 25, 2010 – 2010 Budget and 2011/12 Outlook
- December 15, 2009 – Proclamation of Public Sector Expenses Review Act 2009 and Approval of a Regulation under the Act
- November 13, 2009 – Addendum to Travel, Meals and Hospitality Expenses Directive
- October 28, 2009 – Out of North America Travel Approvals
- October 1, 2009 – 2009 to 2011 Business Plan
- September 1, 2009 – Expense Claim Review
- August 19, 2009 – Travel, Meal and Hospitality Expenses Directive
- March 25, 2010 – Agency Accountability and Transparency

Ministry of Energy and Infrastructure

Office of the Deputy Minister

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900 Bay Street
Toronto, ON M7A 2E1
Tel: 416-327-6758
Fax: 416-327-6755

Ministère de l'Énergie et de l'Infrastructure

Bureau du sous-ministre

Édifice Hearst, 4e étage
900, rue Bay
Toronto, ON M7A 2E1
Tél: 416-327-6758
Téléc.: 416-327-6755

Ontario

July 14, 2010

Ms. Laura Formusa, President and CEO
Hydro One Inc.
483 Bay Street, 15th floor, North Tower
Toronto, Ontario
M5G 2P5

Dear Ms. Formusa: LAURA

Subject: Public Sector Compensation Restraint

I am writing with further information regarding the government's public sector compensation restraint measures announced in the 2010 Budget and the impact of these measures on broader public sector employers and employees.

As you know, Ontario has felt the effects of the global recession and is running a deficit in order to create jobs and protect public services. While the contributions of those who deliver public services are valued and appreciated, the public also expects all of us to do our part to help sustain those public services.

For non-bargaining employees, the government has passed the *Public Sector Compensation Restraint to Protect Public Services Act, 2010*. It covers all public sector employers as defined in the Act who have employees that do not collectively bargain compensation. The Act prohibits increases to compensation, including rates of pay, pay ranges, benefits, perquisites and other payments, before the beginning of April 2012, except in specified circumstances.

... 2

For employees who bargain collectively, the 2010 Ontario Budget policy statement makes the government's direction clear. The government will respect all current collective agreements. However, when these agreements expire and new contracts are negotiated, the government expects its transfer payment partners, agencies and bargaining agents to seek agreements of at least two years' duration that provide no net increase in compensation. The fiscal plan provides no funding for compensation increases for any future collective agreements. It doesn't matter whether contracts expire next month, next year or the year after that – all employers and employee groups will still be expected to do their part.

Any increase in your organization's spending should be for the purpose of providing and protecting public services and is not to be diverted to fund increases in employee compensation.

In order to support the common understanding of all parties about the compensation restraint measures, further Qs and As have now been posted on the Ministry of Finance website at www.ontario.ca/compensation.

These Qs and As provide additional information about the fiscal necessity to restrain public sector compensation and answer questions about the application of the policy statement.

The government expects its transfer payment partners and agencies to comply with the government's direction on public sector compensation. To ensure your organization and any bargaining agents are fully informed, I ask you to share this letter as appropriate so that its contents are communicated to all concerned parties.

The government is continuously assessing how best to support transfer payment partners, agencies and bargaining agents in complying with the Policy Statement and will be communicating additional information as appropriate.

Sincerely,

David L. Lindsay
Deputy Minister

c: Craig MacLennan, Chief of Staff
Rick Jennings, Assistant Deputy Minister
John Whitehead, Assistant Deputy Minister/Interim CAO

Ministry of Energy and Infrastructure

Corporate Development Division
890 Bay Street, 5th Floor
Toronto ON M7A 2C1
Tel.: 416-314-3335
Fax: 416-314-3354

Ministère de l'Énergie et de l'Infrastructure

Division du développement organisationnel
880, rue Bay, 5e étage
Toronto ON M7A 2C1
Tél: 416-314-3335
Téléc.: 416-314-3354

Ontario

July 7, 2010

Mr. Sandy Struthers, Chief Financial Officer
Hydro One Inc.
483 Bay Street, 15th floor, North Tower
Toronto, Ontario
M5G 2P5

Dear Mr. Struthers:

Subject: Access to the Federal Government's Accommodation Directory

The recently revised Travel, Meal and Hospitality Expenses Directive, 2010 encourages the use of the government's vendor of record (VOR) service providers as a way to reduce travel costs.

Through an arrangement with the federal government, ministries, agencies and the four electricity sector corporations prescribed under the *Public Sector Expenses Review Act*, 2009 (PSERA) may access the federal accommodation directory. The vendors in this directory offer reduced rates to eligible users. We understand that there have been some instances where staff have been denied the government rate because hotels were not satisfied that the agency is eligible.

To help address this issue, I am writing to confirm that Hydro One is a prescribed public Ontario entity and authorized under an agreement with the Federal Government to use the Public Works and Government Services Canada (PWGS) hotel search directory.

Please feel free to provide a copy of this letter to your employees/appointees traveling on business to present at hotels that are members of the Federal Government Public Works and Government Services Canada Hotel Search Directory. If required, staff/appointees may present this letter, together with valid agency identification, to confirm eligibility for the reduced government rate permitted under the agreement with the federal government.

I appreciate your cooperation as we work together to reduce travel-related expenses.

Sincerely,

John Whitehead
Assistant Deputy Minister/Interim Chief Administrative Officer

c: Joanne Lorenzi, Executive Assistant to the Deputy Minister, MEI
Rick Jennings, Assistant Deputy Minister, MEI

Ministry of Energy and Infrastructure

Office of the Deputy Minister

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Ontario

RECEIVED
APR 09 2010

March 26, 2010

THE OFFICE OF LAURA I. FORMUSA
FILE
RECEIVED
APR 8 - 2010
B.F.
REFER TO
COPY FOR

Ms. Laura Formusa, President and CEO
Hydro One Inc.
483 Bay Street, 15th floor, North Tower
Toronto, Ontario
M5G 2P5

Dear Ms. Formusa:

On March 25, 2010, the Ontario government introduced the *Public Sector Compensation Restraint to Protect Public Services Act, 2010.* The legislation, if passed, would freeze compensation plans for all non-bargaining employees.

The objective of the legislation is to control costs in one of the government's largest spending lines – compensation of public sector employees. This will help redirect up to $750 million toward sustaining schools, hospitals and other public services.

For employees represented by a bargaining agent, the government will respect all current collective agreements. When these agreements expire and new ones are negotiated, the government will work with transfer payment partners and bargaining agents to seek agreements of at least two years' duration that do not include net compensation increases.

The government's fiscal plan provides no funding for compensation increases for future collective agreements.

Ontarians value and appreciate those who deliver their public services, and they also expect those who are paid by tax dollars to do their part to help protect public services.

As a provincial agency, all non-bargaining employees in Hydro One would be subject to the proposed legislation. As a public sector employer, your organization has an obligation to ensure it provides value for money and that funds are spent prudently, in a manner consistent with the agency's mandate.

.../2

To ensure Hydro One is prepared, I ask you to please share this letter with the appropriate staff in your agency. More information on the government's compensation restraint can be found at www.ontario.ca/compensation in English or www.ontario.ca/remuneration for French.

Your leadership is essential to assist the province in demonstrating a prudent and balanced approach in the management of public funds.

Sincerely,

Fareed Amin
Deputy Minister

c: Craig MacLennan, Chief of Staff
Rick Jennings, Assistant Deputy Minister
John Whitehead, Assistant Deputy Minister/Interim CAO
Betty Morgan, Director, Service Management Branch

Ministry of Energy and Infrastructure

Office of the Deputy Minister

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Ontario

THE OFFICE OF LAURA I. FORMUSA
FILE
RECEIVED
APR 1 2010
O.F.
REFER TO Sandy with CD
COPY FOR

March 23, 2010

Ms. Laura Formusa, President and CEO
Hydro One Inc.
483 Bay Street, 15th floor, North Tower
Toronto, Ontario
M5G 2P5

Dear Ms. Formusa:

I am pleased to share with you the revised Travel, Meal and Hospitality Expenses Directive, which will become effective on April 1, 2010.

The directive supports the Premier's public commitments to implement new accountability measures and improve oversight of expenses. It also supports the commitment to transparency by providing the authority for the public disclosure of expenses.

One of the key changes made to the revised directive is the level of approval required for the service of alcohol at hospitality events. The revised directive now requires Deputy Ministers to approve the service of alcohol at agency/organization hospitality events.

In addition, there is a new provision that allows agencies and organizations, through their responsible ministry, to bring forward a business case to obtain special status from Treasury Board/Management Board of Cabinet (TB/MBC). Special status may be granted where the business of the agency/organization requires regular service of alcohol and or international travel. In these cases, the agency Chair would be given the authority to approve these types of requests.

Please contact John Whitehead, Assistant Deputy Minister/Interim CAO, Corporate Development Division, at 416-325-6544 or John.Whitehead@ontario.ca, for more information on the new forms, process to obtain Deputy Minister approval for the service of alcohol at hospitality events and/or a potential request to TB/MBC for special status.

To assist you in communicating the revised directive to your organization, resource materials are available online at MyOPS, on the agency extranet website (AGNES) and on CDs. A mandatory interactive e-learning tutorial will also be made available to all staff by April 1, 2010.

.../2

In addition, if your organization does not yet have access to AGNES, I encourage you to register by visiting www.agnes.gov.on.ca.

If you have any questions regarding the directive, you may contact Betty Morgan, Director, Service Management Branch, at 416-314-3309 or Betty.Morgan@ontario.ca.

I appreciate your cooperation as we work together to ensure strong oversight and accountability of expense claims.

Fareed Amin
Deputy Minister

Attachment
c: Craig MacLennan, Chief of Staff
Rick Jennings, Assistant Deputy Minister
John Whitehead, Assistant Deputy Minister/Interim CAO
Betty Morgan, Director, Service Management Branch

102041

Ministry of Energy and Infrastructure

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Ontario

FEB 2 5 2010

Mr. James Arnett
Chair
Hydro One Inc.
483 Bay Street
15th Floor, North Tower
Toronto ON M5G 2P5

Dear Mr ~~Arnett~~ Jim:

Thank you for providing a copy of Hydro One Inc.'s 2010 Budget and 2011-12 Outlook and performance targets.

We are pleased to see that Hydro One plans on maintaining the focus on sustaining operations and financial performance while ensuring important measures are in place to meet the challenge of the *Green Energy Act* (GEA).

As we move forward, we expect that Hydro One will continue to show progress on GEA-related investments needed to encourage the connection of renewable generation to the grid. This would include any necessary process improvements related to customer assessments and making sound strategic decisions on investments that will allow the development of renewable generation across Ontario in a cost-effective and timely manner. On this last point, we would expect those decisions to allow for prioritizing investments that will help remove the most barriers to connection of new renewables over the near term. We would also expect this to be facilitated through partnerships, where feasible, or other business arrangements, as appropriate, that would allow for a more cost-effective and timely implementation of transmission projects needed to connect renewables.

While it is always important to be frugal with the public's money, this is especially true under the current economic conditions facing Ontario families and businesses. We expect that Hydro One will continue to make every effort to exercise fiscal restraint, and strive to operate as efficiently and effectively as possible.

As you know, the government holds its agencies to the highest standards of integrity, accountability and transparency. For that reason, the government recently implemented new rules for competitive procurement of consulting services and introduced the *Public Sector Expense Review Act, 2009* to strengthen the accountability of government agency expense claims. We understand that Hydro One has reviewed its internal processes, and trust that the company will formalize all necessary policies and guidelines to comply with these new rules.

.../cont'd

We are satisfied with Hydro One's focus and alignment of its operating and financial plans to support its core business and the government's priorities. This letter constitutes our concurrence with the business planning documents provided by Hydro One as required by the Memorandum of Agreement dated March 27, 2008.

Sincerely,

Brad Duguid
Minister

Dwight Duncan
Minister of Finance

Minister of Energy
and Infrastructure

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et de l'Infrastructure

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www.ontario.ca/MEI

Ontario

December 15, 2009

Mr. James Arnett, Chair
Hydro One Inc.
483 Bay Street, 15th floor
Toronto, Ontario
M5G 2P5

Dear Mr. Arnett:

Re: Proclamation of the *Public Sector Expenses Review Act, 2009* and Approval of a Regulation under the Act

I am writing to provide you with an update on recent actions to strengthen accountability, transparency and oversight of expense claims. The *Public Sector Expenses Review Act, 2009* and a regulation under the Act came into effect on November 30, 2009.

The Act gives Ontario's Integrity Commissioner the authority to review the expense claims of the following designated persons, detailed in O.Reg 440/09, as outlined below:

- Every person appointed to the public entity by the Lieutenant governor in Council, the Lieutenant Governor or a minister (for the purposes of the current initiative, 22 of Ontario's largest agencies have been identified);
- The chief executive officer of the public entity or, in the case of the Workplace Safety and Insurance Board, the chief executive officer and the chief operating officer;
- Every member of the senior management group of the public entity who reports directly to the chief executive officer or, in the case of the Workplace Safety and Insurance Board, the chief executive officer and the chief operating officer ;and
- The five employees of the public entity that submit the highest expense claims annually.

The expenses that the Commissioner will review must have been claimed on, or after, September 1, 2009. The Commissioner will also have the ability, if necessary, to require the repayment of claimed expenses. To help the 22 agencies, transition provisions have been put in place to allow the agencies sufficient time to adjust to the new requirements.

...2

If your office has any questions regarding the new legislation or its regulation, please contact Catherine Brown, Assistant Deputy Minister, Human Resource Management and Corporate Policy Division, HROntario, Ministry of Government Services, at 416-327-9262 or Catherine.Brown@ontario.ca.

For your reference, the Act and regulation are available on the e-laws web site at www.e-laws.gov.on.ca.

I appreciate your ongoing cooperation as we work together to ensure strong oversight and accountability of expense claims.

Sincerely,

Gerry Phillips
Minister

c: Saäd Rafi, Deputy Minister
Rick Jennings, Assistant Deputy Minister
John Whitehead, Assistant Deputy Minister/Interim CAO

Ministry of Energy and Infrastructure

Office of the Deputy Minister

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Ontario

Copy sent to Sandy. Sab file

LAURA FORMUSA
RECEIVED
NOV 20 2009
B.F.
REFER TO
COPY FOR

November 13, 2009

Ms. Laura Formusa, President and CEO
Hydro One Inc.
483 Bay Street, 15th floor
Toronto, Ontario
M5G 2P5

Dear Ms. ~~Formusa~~ Laura:

Subject: Addendum to the *Travel, Meal and Hospitality Expenses Directive*

Further to correspondence sent to you on August 19, 2009, I am writing to advise you that the government has approved an addendum to the *Travel, Meal and Hospitality Expenses Directive* which is being put into effect immediately.

The two changes tighten and clarify the rules for submitting expense claims to improve oversight and accountability of expenses.

In particular, there is now a requirement for prior written approval to be provided by a senior executive in cases where alcoholic beverages are served at hospitality events.

The second amendment prohibits a person from approving their own expenses. It also stipulates that in cases of group expenses where one individual is paying for all attendees, it is the most senior person who is responsible for paying and then claiming the expense.

The full text of the revised directive and the addendum can be found on the Ministry of Government Services website at:
http://www.gov.on.ca/mgs/en/Home/STEL01_039054.html

I have also attached a copy of the addendum for your reference.

Please ensure this information is made available to staff in your organization, especially those who may travel on business or claim meal and hospitality expenses.

As one of Ontario's twenty-two largest agencies, it is the government's expectation that you will strictly adhere to the rules of the *Travel, Meal and Hospitality Expenses Directive*.

... 2

I appreciate your cooperation as we work together to ensure strong oversight and accountability of expense claims.

Any questions regarding this addendum or the directive can be directed to Abby Katz Starr, Director, Corporate Policy, Ministry of Government Services, at 416-325-1345 or Abby.Katzstarr@ontario.ca.

Regards.

Saäd Rafi
Deputy Minister

Attachment
c: Honourable Gerry Phillips, Minister of Energy and Infrastructure
Rick Jennings, Assistant Deputy Minister
John Whitehead, Assistant Deputy Minister/Interim CAO

Ministry of Energy and Infrastructure

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880 Bay Street, 5th Floor
Toronto ON M7A 2C1
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880, rue Bay, 5e étage
Toronto ON M7A 2C1
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Téléc.: (416) 314-3354

Ontario

October 28, 2009

MEMORANDUM TO: Sandy Struthers
Chief Financial Officer
Hydro One Inc.

FROM: John Whitehead
Assistant Deputy Minister/Interim CAO
Corporate Development Division

RE: **Out of North America Travel Approvals**

I am writing to you today to set out the process for obtaining Minister's approval for travel outside of North America. At the outset, I would note that the government is planning on further refining the Travel, Meal and Hospitality Expenses Directive. This work is expected to be completed this fall, but in the interim we will use the process set out below. Further instructions will be communicated, as necessary, after the revised Travel, Meal and Hospitality Expenses Directive is made available.

As outlined in the Travel, Meal and Hospitality Expenses Directive, prior written approval for travel outside of North America must be obtained from the approval authority as listed below:

	Chair	Appointees	Agency Employees governed by agency's enabling legislation (all MEI agencies listed above)	Consultants to Agencies
Outside Canada and Continental USA	Minister	Minister	Chair, Minister	Manager, Chair, Minister

Travel requests must be submitted on the attached Request to Travel Out of North America form, along with a covering letter providing pertinent details supporting the request, including:

- Name of individual travelling.
- Travel dates.
- Purpose of travel – Clearly identify the reasons for the travel and provide a rationale to demonstrate that the proposed travel is critical to the organization's priorities and that alternatives to travel have been considered and ruled out. Include an agenda/proposed itinerary.

.../2

- Travel details
  - Mode of transportation, i.e. rail, automobile, air.
  - Travel locations/destinations.
  - Are costs being paid by another party?
- Total estimated cost of travel. In fulfilling our shared responsibility for ensuring best value for taxpayer dollars, **all costs for travel and accommodation must be modest and appropriate**.

As outlined in the directive, business travel outside Canada and the continental USA must be:

- Consistent with Ontario's statement of international priorities;
- Very likely to produce an economic benefit for the province if the request for travel is to a non-priority region; or,
- Consistent with the government's stated priorities.

The standard for air travel is economy fare.

Agencies should critically review all requests to travel outside of North America before submitting them to the ministry for Minister's approval. In forwarding requests, Chairs are confirming that all travel directly supports the achievement of the agency's business plan or relates to essential professional development, and that travel arrangements are cost-effective. Costs must be modest and appropriate and strike a balance among economy, health and safety, and efficiency of operations.

Completed travel request forms should be forwarded to the attention of Betty Morgan, Director, Service Management Branch, Ministry of Energy and Infrastructure, 880 Bay Street, 5th floor, Toronto, Ontario, M7A 2C1. **Travel requests must be submitted four weeks in advance of the proposed travel to allow sufficient time for review and approval.** A copy of the Request to Travel Out of North America form is attached to this memorandum.

Approved travel requests will be returned to your office for your records.

Thank you for your cooperation in ensuring ongoing accountability within your organizations.

John Whitehead

Attachment:
Request to Travel Out of North America form

c: Jennifer Morris, Chief of Staff
Saäd Rafi, Deputy Minister
Rick Jennings, ADM, Energy Supply, Transmission and Distribution Policy
Betty Morgan, Director, Service Management Branch

Ontario

Request to Travel Out of North America

Note: Refer to Criteria and Instructions before completing Request and Estimated Travel Expenses.

Name of Ministry

Name of Employee	Position
Destination	Travel Dates From To

Purpose of Trip

Total Estimated Cost ($Cdn)	Ontario Government	Other *(specify)*
$	$	

Identify the primary objective of this trip by checking the appropriate box below *(See criteria for approval)*

Category: A	B	C
1 ☐ Implement specific decision made by Premier/Cabinet/Minister	1 ☐ Provide marketing assistance to industry	1 ☐ Acquire professional/technical expertise
2 ☐ Accompany and assist Minister	2 ☐ Investment attraction	2 ☐ Represent Ontario or Canada at international meeting
3 ☐ Pursue legal/criminal proceedings	3 ☐ Tourism promotion	3 ☐ Make professional contribution at international forum
4 ☐ Manage Ontario government staff abroad	4 ☐ Technology transfer	4 ☐ Staff development
	5 ☐ Develop special relationships	5 ☐ Other *(specify)*
	6 ☐ Quick commercial return for Province	
	7 ☐ Market intelligence	
	8 ☐ Provide service on cost-recovery basis	

Provide details on the objective(s) you have identified and describe how the trip will serve to achieve the objective(s)

Please note other ministries consulted regarding this travel. For **Category C**, as appropriate, include (a) alternatives to foreign travel you have considered and rejected, and (b) any opportunities which the trip might provide to advance the Province's international priorities.

Approved in Requesting Ministry

Deputy Minister	Date *(yyyy-mm-dd)*
Minister	Date *(yyyy-mm-dd)*
Name of Contact person for further information	Telephone *(incl. Area code, ext.)*

Reviewed by Secretary of Cabinet

Signature	Date *(yyyy-mm-dd)*
Remarks	

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Ontario

Estimated Travel Expenses for Out of North America Travel

Note: Complete form demonstrating that the requested travel arrangements (e.g. transportation mode, accommodation, etc. are cost effective. Attach to Request to Travel Out of North America form 7540-1543 and submit for approval.

Name of Ministry	Name of Employee

Branch	Program	Travel Dates *(dd/mm/yy)* From	To

Airfaire

☐ Economy ☐ Business Class *(requires explanation in the DM's memo)*

Date *(dd/mm/yy)*	From	To	Estimated Cost ($Cdn)

Remarks | Sub-total ($Cdn)

Accommodation

Date *(dd/mm/yy)*	Hotel	City	Cost per Night ($Cdn) *(tax included)*	No. of Nights	Estimated Cost ($Cdn)

Remarks | Sub-total ($Cdn)

Meals

Date *(dd/mm/yy)*	City	Meals	Cost per Meal Local Currency[1]	Cost per Meal ($Cdn)[2]	No. of Meals	Estimated Cost ($Cdn)
		Breakfast				
		Lunch				
		Dinner				
		Breakfast				
		Lunch				
		Dinner				
		Breakfast				
		Lunch				
		Dinner				
		Breakfast				
		Lunch				
		Dinner				
		Breakfast				
		Lunch				
		Dinner				

Remarks | Sub-total ($Cdn)

[1] Go to the Treasury Board of Canada Secretariat website for allowable meal allowance for each country: http://www.tbs-sct.gc.ca
[2] Go to the Bank of Canada website for exchange rates and currency converter: http://www.bankofcanada.ca/en/rates/converter

Other Business Expenses

Item	Description	Estimated Cost ($Cdn)
Registration Fee		
Ground Transportation		
Insurance		
Incidentals/Miscellaneous		
Other *(specify)*		

Remarks | Sub-total ($Cdn)

Total Estimated Travel cost ($Cdn) ▶

Workshop/Exhibit** | **Overhead costs, non-travel related and not included in the Total Estimated Travel cost.

Ontario

Request to Travel Out of North America
Criteria/Instructions for Approval of Travel Requests

Criteria

Where the purpose of travel may relate to the mandate of another ministry, please notify that ministry before submitting a request. Where results of a trip may be of relevance to one or more other ministries, the Secretary of the Cabinet may request a report on the trip for distribution to such ministries.

Category A

Travel authorization will *immediately* be granted by the Secretary of the Cabinet if:

1. The trip is essential to implement specific decisions made by the Premier, the Cabinet Minister; *or*
2. The Premier or Cabinet Minister requires the official to accompany or assist him/her during a trip abroad (limit to 1 official); *or*
3. The trip is made to pursue necessary legal or criminal proceedings.

Category B

Travel authorization will *normally* be granted if the request is consistent with Ontario's International priorities.

To conduct activities which support the Province's economic objectives in priority regions (United States, Europe and Asia) such as:

1. provide marketing assistance to industry,
2. investment attraction,
3. tourism promotion, and
4. technology transfer; *or*
5. To further the development of special relationships with jurisdictions with which Ontario is pursuing close economic, educational, scientific and cultural ties; *or*
6. There is a clear expectation that the trip will likely produce a quick commercial return for the Province; *or*
7. To gather important market intelligence which is otherwise not available to Ontario; *or*
8. To provide a service sector, or to a government or an institution, on a cost-recovery basis.

Category C

Other travel requests will be approved *only if supported* by a clearly spelled out rationale as to how the travel serves the priorities of the Ministry. In cases where the proposed travel benefits parties other than the Province, consideration will be given to the extent to which such parties assume the costs of travel:

1. To acquire professional/technical expertise not otherwise available; *or*
2. To represent Ontario or Canada at international meeting as delegate, speaker, task force member, etc., *or*
3. To make a professional contribution to an international forum, in response to invitation; *or*
4. To provide professional staff development which is otherwise not available; *or*
5. Other travel related to the Ministry programs and priorities.

Travel requests made under Category C should include, as appropriate;

a. the alternatives to foreign travel which the ministry might have considered and rejected, and
b. any opportunities which the trip might provide to advance the Province's International priorities and increase its International profile.

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Instructions

Timeline and Process

All necessary travel forms must be submitted **at least three (3) weeks in advance** of the travel date. This will ensure there is sufficient time to for the proposed trip to receive travel clearance and approval from the Secretary of the Cabinet (SOC).

Forward all completed travel forms to the Office of International Relations and Protocol (OIRP) to obtain travel clearance at the address noted below. OIRP will forward the travel forms to the SOC for final approval. Once the travel forms have been approved, the Office of the SOC will notify the appropriate ministry and the approved (signed) package will be returned to OIRP for final processing.

Travel Advisories

The Office of International Relations and Protocol (OIRP) reviews all travel reports issued by the Department of Foreign Affairs and International Trade (DFAIT) prior to granting a travel recommendation to the Secretary of the Cabinet.

DFAIT issues four levels of travel advisories:

Travel Reports:	I	Exercise Normal Security Precautions
	II	Exercise High Degree of Caution
Travel Warnings:	III	Avoid Non-Essential Travel
	IV	Avoid All Travel

In the case of level III, the traveling ministry will be notified. The Deputy is to provide a memorandum addressed to the ADM International Relations and Chief of Protocol providing assurance that:

- the travel is essential to ministry business;
- the warning has been discussed with the traveling staff member;
- the staff member will limit travel to the area specified within the travel warning; and
- the staff member will register with the Canadian mission in the destination to be visited.

In the case of level IV, OIRP will recommend against travel.

It is the responsibility of individual Ministries to monitor advisories for changes that may impact staff travel plans. This information can be found at www.voyage.gc.ca.

Flight Selection

The standard for air travel is economy. Business class travel can only be requested due to medical reasons or if the continuous flight segment exceeds nine (9) hours. A medical note must accompany the Out of North America travel forms. Approval of business class travel is at the discretion of the Secretary of the Cabinet.

Required Documents

The following material must be submitted for travel approval:

- A completed **"Request to Travel Outside of North America"** form 7540-1543 with appropriate levels of approval (including the Minister);
- A **memo** from the respective Deputy Minister to the Secretary of the Cabinet outlining the rationale for the proposed travel and its impact on the organization's priorities;
- A completed **"Estimated Travel Expenses for Out of North America Travel"** form 7540-1543-1; and
- An itinerary listing scheduled daily activities and supporting background information on the proposed event.

Please forward all completed and authorized travel forms to:

Office of International Affairs and Protocol
Intergovernmental Affairs
The Cabinet Office
1075 Bay Street, Suite 830
Toronto ON M5S 2B1
Tel.: 416 325-8535 Fax.: 416 325-8550

Inquiries:

Direct all inquiries to the Office of the Secretary of the Cabinet, telephone 416 326-3786 or by e-mail to maggie.balik@ontario.ca

Visit MyOPS website for additional information on the OPS Travel Directive

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Minister of Energy and Infrastructure

Office of the Deputy Premier

4th Floor, Hearst Block
900 Bay Street
Toronto ON M7A 2E1
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Fax: 416-327-6754
www.ontario.ca/MEI

Ministre de l'Énergie et de l'Infrastructure

Bureau du vice-premier ministre

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900, rue Bay
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Ontario

OCT - 1 2009

Mr. James Arnett, Chair
Hydro One Inc.
483 Bay Street
15th Floor, North Tower
Toronto, ON M5G 2P5

Dear Mr. Arnett:

Thank you for providing a copy of Hydro One Inc.'s 2009-2011 Business Plan, the performance targets in your corporate scorecard and related documents.

Hydro One has a critical role in expanding the province's supply of renewable energy. The government has recently introduced legislation that, if passed, will set the framework toward transforming Ontario's electricity system to a greener future. The proposed legislation would have significant implications on Hydro One's transmission and distribution operations. We expect Hydro One to rise to the challenge of making process improvements to better allow the connection of clean and renewable generation to the grid and to make sound strategic decisions on enabling transmission and distribution investments that will allow the development of renewable generation across Ontario, as well as smart grid infrastructure, in a cost-effective and timely manner. We also recognize that this will have implications on Hydro One's business plan moving forward, but expect that the organization will be sufficiently adaptable and responsive to the challenges that lie ahead in order to meet the objectives of greening and modernizing Ontario's electricity system.

In response to current economic circumstances, the government recently urged its partners in the broader public service to follow the leadership set by the government in limiting compensation increases to senior management and freezing the size of its workforce. We are pleased that Hydro One has indicated that it will limit overall total compensation, including merit increases and bonuses, for non-unionised employees to 1.5 per cent. Although we are aware that Hydro One's business plan calls for increased infrastructure investment that will require additional staffing, we would encourage you to be vigilant about cost increases and manage your business in a manner that is consistent with the spirit of the government's recent announcements.

This letter constitutes our concurrence with the documents provided by Hydro One as required by the Memorandum of Agreement dated March 27, 2008.

Sincerely,

George Smitherman
Deputy Premier, Minister

Dwight Duncan
Minister of Finance

Ministry of Government Services

Deputy Minister, Government Services
and Associate Secretary of the Cabinet,
Secretary of Management Board
of Cabinet

99 Wellesley Street West
Room 5320, Whitney Block
Toronto ON M7A 1A1
Tel.: 416 325-1607
Fax: 416 325-1612

Ministère des Services gouvernementaux

Sous-ministre, Services gouvernementaux
et secrétaire associé du Conseil des ministres,
Secrétaire du Conseil de gestion
du gouvernement

99, rue Wellesley Ouest
Édifice Whitney, bureau 5320
Toronto ON M7A 1A1
Tél. : 416 325-1607
Téléc. : 416 325-1612

Ontario

September 1, 2009

MEMORANDOM TO: *CEO's and Chairs of:*
Ontario Lottery and Gaming; Ontario Power Generation; Hydro One; Independent Electricity System Operator; Ontario Power Authority; WSIB; LCBO; eHealth; Cancer Care Ontario; Ontario Infrastructure Projects Corporation (Infrastructure Ontario); Ontario Energy Board; Alcohol and Gaming Commission of Ontario; Ontario Financing Authority; Ontario Realty Corporation; Ontario Public Service Pension Board; Metrolinx; Toronto Area Transit Operating Authority; Ontario Human Rights Commission; Metropolitan Toronto Convention Centre Corporation; Ontario Educational Communications Authority (TVO/TFO); Ontario Racing Commission; Ontario Clean Water Agency.

SUBJECT: Expense Claim Review

As you will be aware from today's announcement made by Premier Dalton McGuinty, effective immediately, your entity's final expense claims will be reviewed by Ontario's Integrity Commissioner, similar to current oversight practices for ministers and political staff.

Under these new rules, in situations where the Integrity Commissioner determines that inappropriate expenses have been claimed, (e.g., personal items or alcohol), employees will be required to reimburse the appropriate source for those costs.

In addition, please be reminded that all government agencies, boards and commissions have been directed to protect taxpayers' interests and strictly adhere to the Ontario Public Service's *Travel, Meal and Hospitality Expenses Directive.*

More details about the process for submitting final claims to the Integrity Commissioner will be provided shortly, however any immediate questions regarding the Ontario Government's *Travel, Meal and Hospitality Expenses Directive* can be directed to Abby Katz-Starr, Director, Corporate Policy, Ministry of Government Services, at 416-325-1345 or Abby.Katzstarr@ontario.ca.

We appreciate your cooperation as we work together to ensure ongoing accountability within our organizations.

Regards,

Original Signed by,

Ron McKerlie
Deputy Minister, Ministry of Government Services
Associate Secretary of the Cabinet and
Secretary of Management Board of Cabinet

Ontario

NEWS

Office of the Premier

Tough, Independent Review Of Agency Expenses

Employees To Repay Taxpayers For Inappropriate Use Of Funds

NEWS September 1, 2009

Ontario's largest arm's-length bodies will no longer have final approval of their own expenses.

Starting this fall, employees at Ontario's largest agencies, boards and commissions will be required to have their expenses reviewed by Ontario's Integrity Commissioner.

Under the new rules, employees who claim unacceptable expenses like personal items and alcohol for staff functions will repay taxpayers.

Ontario Premier Dalton McGuinty announced the new rules today, making employees at agencies, boards and commissions subject to a similar oversight process as ministers and political staff.

Yesterday, the government made public all expense claim reports and receipts for OLG's executive and senior level staff from January 1, 2007 to December 31, 2008. Recent employee expenditures included inappropriate and unacceptable items and services and a number of claims did not include itemized receipts.

QUOTES

"Every penny spent by government is a penny earned by Ontarians — and they deserve nothing less than the toughest measures we can muster to protect taxpayer dollars."
— Dalton McGuinty, Premier of Ontario

QUICK FACTS

- The new oversight rules will apply to Ontario's largest agencies, boards and commissions including: Ontario Lottery and Gaming; Ontario Power Generation; Hydro One; Independent Electricity System Operator; Ontario Power Authority; WSIB; LCBO; eHealth; Cancer Care Ontario; Ontario Infrastructure Projects Corporation (Infrastructure Ontario); Ontario Energy Board; Alcohol and Gaming Commission of Ontario; Ontario Financing Authority ; Ontario Realty Corporation; Ontario Public Service Pension Board; GO Transit; Metrolinx; Toronto Area Transit Operating Authority; Ontario Human Rights Commission; Metropolitan Toronto Convention Centre Corporation; Ontario Educational Communications Authority (TVO/TFO); Ontario Racing Commission; Ontario Clean Water Agency.

- Under the *Cabinet Ministers' and Opposition Leaders' Expenses Review and Accountability Act,* cabinet ministers and political staff are required to submit their expenses for review by the Integrity Commissioner to ensure rules are followed and taxpayers' interests are protected.

Minister of Energy
and Infrastructure

Office of the Deputy Premier

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Ontario

August 19, 2009

Mr. James Arnett, Chair
Hydro One Inc.
483 Bay Street, 15th floor
Toronto, Ontario
M5G 2P5

Ms. Laura Formusa, President and CEO
Hydro One Inc.
483 Bay Street, 15th floor
Toronto, Ontario
M5G 2P5

Dear Mr. Arnett and Ms. Formusa:

As we indicated in our letter of July 29, 2009, Management Board of Cabinet approved an addendum to the *Travel, Meal and Hospitality Expenses Directive* that prohibits the payment of meal, hospitality, and incidental expenses to consultants. We are writing today to provide you with additional details regarding the addendum.

Prohibited expenses include but are not limited to:

- meals, snacks and beverages;
- gratuities;
- laundry, dry cleaning and valet services;
- dependant care;
- personal telephone calls.

Consultants with existing contracts that allow for payment of meal, hospitality or incidental expenses may be reimbursed for reasonable expenses of these types in accordance with the Directive. However, ministries and agencies should strongly discourage a consultant from making a claim for such reimbursement.

Reimbursement will continue to be made to consultants for flights, train and car travel, as well as hotel rooms, in accordance with the Directive and where their contract provides for such reimbursement.

... 2

As all ministries and all agencies classified under the *Agency Establishment and Accountability Directive* (AEAD) are bound by the requirements under the *Travel, Meal and Hospitality Expenses Directive*, these changes will also apply to them.

Management Board of Cabinet has directed that ministries provide confirmation of compliance by their designated non-classified entities by August 31, 2009. As a designated non-classified entity (see attached Schedule 1), please provide written confirmation by August 27, 2009 to Betty Morgan, Director, Service Management Branch, Ministry of Energy and Infrastructure, 5th floor, 880 Bay Street, Toronto, Ontario M7A 2C1 that you are in compliance with the addendum to the Directive.

For your information, we have attached a copy of the addendum and a Fact Sheet. Please note that the addendum will be integrated into the main body of the Directive in the fall.

Your support is appreciated as we move forward to implement this important new policy.

If you need additional information, please contact Betty Morgan at 416-327-6738 (or 416-314-3309 after August 21).

Sincerely,

George Smitherman
Deputy Premier, Minister

Saäd Rafi
Deputy Minister

Attachments:
1. Addendum to the *Travel, Meal and Hospitality Expenses Directive*
2. Fact Sheet
3. Schedule 1: Non-classified Entities

c. Rick Jennings, Assistant Deputy Minister, Energy Supply, Transmission and Distribution Policy
John Whitehead, Assistant Deputy Minister, Regulatory Affairs and Strategic Policy

Ministry of Energy
and Infrastructure

Office of the Minister

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Ontario

MAR 2 5 2010

MEI1203MC-2010-1017

Mr. James Arnett
Chair
Hydro One
483 Bay Street
North Tower, 15th Floor
Toronto ON M5G 2P5

Dear Mr. Arnett:

It was a pleasure meeting you on February 9, 2010, and I look forward to working with you and your staff on many important initiatives in the weeks and months ahead.

I would also like to take this opportunity to stress the importance that I place on agency accountability and transparency.

As my predecessors have conveyed, there are high expectations surrounding your responsibilities pertaining to travel, meal and hospitality expenses as well as the procurement and payment of consultants. I expect that you will continue to comply with these rules. As always, common sense and good judgment should be used when making decisions that involve spending money entrusted to us by taxpayers. In addition, ministry staff are always available to answer any questions Hydro One staff may have.

I appreciate your co-operation and your efforts to date in ensuring ongoing accountability within your organization.

Sincerely,

Brad Duguid
Minister

c: Laura Formusa, President and CEO, Hydro One
Fareed Amin, Deputy Minister
John Whitehead, Assistant Deputy Minister/Interim CAO

School Energy Coalition (SEC) INTERROGATORY #9 List 1

Interrogatory

Ref: [Ex. A/11/2] With respect to the policy summary

a. P. 2. Please comment on how, if at all, the inventory recognition policy described in the last sentence of 2.1 is similar to the "used and useful" concept in regulatory capital accounting.

b. P. 3. Please confirm that the change in accounting for income taxes cannot, under the Board's rules, have any impact on revenue requirement.

c. P. 3. Please estimate the dollar impact in the test periods of implementing the policy and directive referred to in 2.4.

Response

a. Effective January 1, 2008, Hydro One was required by a change in presentation standards under Canadian generally accepted accounting principles, (i.e. CICA Handbook Section 3031 "Inventories") to reclassify certain assets from materials and supplies inventory to future use fixed assets. These asset will not be "used and useful" until they are installed and put into service.

While this presentation change was required for Canadian reporting purposes in 2010, it was intended to move Canadian inventory reporting closer to IFRS in advance of full adoption. The change is directly analogous to the Accounting Standards Board's change in classification for intangible assets that was effective for Hydro One January 1, 2009. Given this was a presentation change only, there has been no substantive change to the operational use of the related inventory or intangible assets. As such, Hydro One has continued to include both classes of assets in the rate base.

b. Payments in lieu of income taxes are currently included in revenue requirement on a cash basis under CGAAP and will continue to be treated the same way under IFRS per EB-2008-0408 item 5.2 page 42. The policy change described at page 3 of the referenced exhibit affected balance sheet presentation for external reporting purposes only and did not impact the revenue requirement.

c. The changes to the Business Expense Policy – Travel, Meals and Hospitality result in a reduction of the allowable limits for meals and the mileage rates for employees not covered by collective agreements. The changes expected to have a dollar impact are as follows:

Meals

Prior to implementing the Directive, employees were reimbursed meal costs up to a total of $60 per day for breakfast, lunch and dinner when travelling. For business meals, employees were reimbursed up to $30 for lunch and up to $60 for dinner. Employee recognition was up to $50 per employee commensurate with the accomplishment or achievement.

After implementing the Directive, the reimbursement limits for represented employees remained unchanged given that the terms of the appropriate governing collective agreement supersede the Policy. The reimbursement limits for non represented employees were reduced to a maximum of $8.75 for breakfast, $11.25 for lunch and $20 for dinner when travelling and for business meals. Employee recognition is no longer provided for.

Mileage Rates

The rate paid to represented employees using their automobiles is based on a formula that is directly related to the Private Transportation Index, a component of the Consumer Price Index for Canada. The rate changed periodically throughout the year. In 2010, the rate per kilometre driven ranged from 48 cents to 49 cents. After implementing the Directive, the method for calculating the rate of reimbursement, was unchanged for represented employees due to the collective agreements.

The rate paid to non represented employees before implementing the Directive was calculated based on the same formula above. After implementing the Directive, the rate paid to non represented employees is based on the kilometres driven and on whether the kilometres driven were in Southern or Northern Ontario. The chart below summarizes the rates that apply:

Kilometres Driven	Southern Ontario ($ per km)	Northern Ontario ($ per km)
0 - 4,000 km	0.40	0.41
4,001 - 10,700 km	0.35	0.36
10,701 - 24,000 km	0.29	0.30
Greater than 24,000 km	0.24	0.25

Given that the reduction in allowable limits for meals and mileage rates apply to employees not covered by a collective agreement, the savings are not expected to be significant as non represented employees represent only approximately 12 percent of the total employees and many do not regularly travel.

School Energy Coalition (SEC) INTERROGATORY #10 List 1

Interrogatory

Ref: [Ex. A/11/4] With respect to the Green Energy Plan:

a. P. 5. Please provide any vintage study or other such evidence showing the pattern of the ages of the assets owned by the Applicant, in each major asset category.

b. P. 8. Please provide a table showing the breakdown of the $7.0 billion of total expected spending until 2020 by year and my category.

Response

a. Vintage studies on the age of the assets are contained in Exhibit C1, Tab 2, Schedule 1, Appendix A, and Exhibit D1, Tab 2, Schedule 1, Section2. In addition, as part of EB-2005-0501 Hydro One submitted a Hatch Acres Asset Condition Assessment report, dated August 2006. A copy is attached.

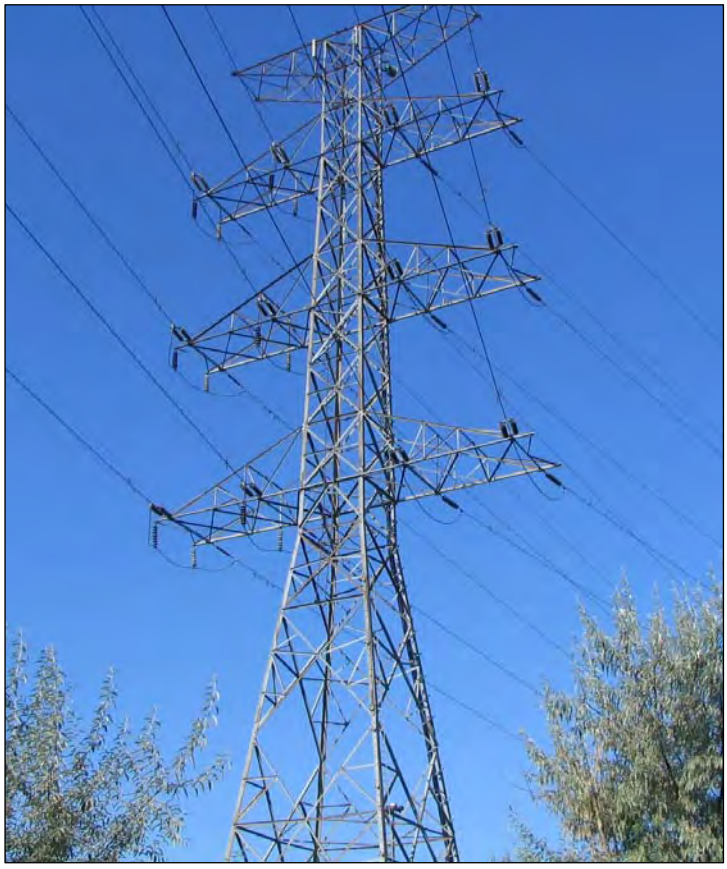
Furthermore, Exhibit I, Tab 5, Schedule 8 provides additional information on future demographics of key assets.

b. Please see Exhibit I, Tab 1, Schedule 103

HYDRO ONE HATCH ACRES ASSET CONDITION REPORT

Filed: September 12, 2006
EB-2005-0501
Exhibit D1-2-1
Appendix A

Prepared for
Hydro One Networks Inc.
Toronto, Ontario



Asset Condition Assessment

Summary Report
Hydro One Transmission Assets

August 2006

Prepared by
Hatch Acres Incorporated
Oakville, Ontario, Canada

in association with

PowerNex *Associates* Inc.

EPRI Solutions Inc.

Asset Condition Assessment

Summary Report

Hydro One Transmission Assets

By

Hatch Acres
PowerNex Associates Inc.
EPRI Solutions Inc.

August 2006

This 2006 report has been prepared by Hatch Acres in association with PowerNex Associates Inc. and EPRI Solutions USA, (Consultants) for Hydro One Networks Inc.

Neither Hydro One Networks Inc. nor the Consultants, nor any other person acting on their behalf makes any warranty, express or implied, or assumes any legal responsibility for the accuracy of any information or for the completeness or usefulness of any process disclosed or results presented, or accepts liability for the use, or damages resulting from the use, thereof.

Any reference in this report to any specific process or service by trade name, trademark, manufacturer or otherwise does not necessarily constitute or imply its endorsement or recommendation by Hydro One Networks Inc. or its Consultants.

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2.0 Methodology

2.1 Asset Descriptions
2.2 Asset Demographics
2.3 Review of Asset Condition Assessment Process
2.4 Analysis of Asset Condition
2.5 Audit of ACA Data Collection Process

3.0 Analysis of Transmission Assets

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3.1.3 Transmission – Oil Circuit Breakers
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3.1.5 Transmission – HV/LV Switches
3.1.6 Transmission – Operating Spares
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4.0 Audit of ACA Data Collection Process

4.1 Audit of Lines and Rights-of-Way
4.2 Audit of Station Assets
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Appendix 1 – Development of Asset Condition Composite Health Indices
Appendix 2 – EPRI Solutions "Industry Best Practice Review for Hydro One"

Executive Summary

E.1 Introduction

In preparation for effectively rationalizing Hydro One Networks Inc. sustainment based work programs, the company has undertaken a major condition assessment program for its Transmission (Tx) Assets. Since the inception of the asset management organization, Hydro One Networks has reviewed the data available within its maintenance databases, identified additional data required to facilitate an objective appraisal of asset condition, and undertaken additional condition assessment surveys as necessary to collect the critical mass of asset condition data needed to plan its sustainment work programs.

This report contains a review of the overall asset condition assessment (ACA) process adopted by Hydro One Networks and documents the evaluated condition of the total population of Transmission assets, based on condition criteria and end-of-life criteria that are indicative of asset condition and consistent with industry practices.

The Transmission assets were grouped into 43 asset classes and prioritized into three categories, Priority 1 (P1), Priority 2 (P2), and Priority 3 (P3), based on their value to the business (in terms of reliability, customer, finance, health & safety, regulatory /legal/ environment) and importance of acquiring the condition information. P1 assets (11 asset classes) represent the highest priority assets and are of high value (in terms total sustainment program expenditures) and high risk to the business. P2 assets (15 asset classes) are second in priority with moderate value and high risk; and finally P3 assets (17 asset classes) are lowest in priority with lower value and risk to the business. This report presents the condition assessment results of the P1 and P2 assets. For the low priority P3 assets only a review of industry practices is presented – any available condition information was not assessed because of the lower priority of these assets.

This report has been prepared by Hatch Acres Limited of Oakville Ontario, in association with PowerNex of Toronto, Ontario and EPRI Solutions, USA. The analysis and report has been prepared in consultation with Hydro One Networks Inc. staff specialists, but the report and its conclusions are based on the findings of the consultant. For P&C and Metering assets, Networks has prepared specific report sections, including underlying analysis. This approach was adopted since the P&C and Metering analysis required the use of performance data rather than detailed condition information due to the nature of these assets. The consultants in this case limited their involvement to auditing the process and analytical methods and the assessed condition results.

E.2 Process Review

In general, it has been found that Hydro One Networks has undertaken a very careful and thoughtful evaluation of condition assessment needs, and has followed a steady and measured program of data collection to secure the information needed to assess the condition of its Transmission assets. The data collection methods, tools and technologies are generally appropriate to the task of measuring asset condition, providing the right data

at an appropriate cost. The methods used by Hydro One Networks have been found to be consistent with industry practices. The methods and procedures for data collection are well documented in head office procedure documents and specifications for data collection services.

With a few exceptions, the identified data collection procedures have been executed according to specifications, and useable data has been collected and stored in centralized or distributed databases.

Networks is using this data appropriately, having adopted condition criteria that form a rational basis for asset decision-making. Networks has adopted methods of analysis that are consistent with industry practices in most cases, and are at the cutting edge of industry practices in several cases. With composite Health Indices for critical class of assets, as recommended by the consultant, Hydro One Networks has established a coherent and rational basis for evaluating the overall condition of each Transmission asset owned by the company.

Tables E1 and E2 show an overall evaluation of the quality of the processes adopted by Hydro One Networks, and the quality of the data found in the various databases.

	Best Practice & Process Review			
	Utility Comparisons	**Process Viability**	**Data Availability**	**Health Index Developed**
TX Stations				
Transformers	1	1	2	Yes
Power Line Carrier	1	1	2	Yes
Oil Breakers	1	1	1	Yes
Air Blast Breakers	1	1	2	Yes
HV/LV Switches	1	1	1	Yes
Operating Spares	1	1	1	Yes
Protection and Control	1	1	N/A *	Yes
Tx Lines				
Phase Conductors	1	1	2	Yes
Wood Pole Structures	1	1	2	Yes
U/G Cables	1	1	1	Yes
Right Of Ways	1	2	2	Yes

- Score of 1-2 Very Good - Only minor problems
- Score of 3 Fair – Some gaps or problems
- Score of 4-5 Poor - Significant problems

* Condition data is not effective for advanced warning of P&C equipment failures and inferred condition factors such as performance and obsolescence were used in the Health Index formulation.

Table E1 Evaluation of Networks ACA Processes for P1 Assets

	Best Practice & Process Review			
	Utility Comparisons	Process Viability	Data Availability	Health Index Developed
TX Stations				
HP Air Systems	1	2	2	Yes
SF6 Breakers	1	1	3	Yes
Metalclad Switchgear	1	1	3	Yes
GIS Equipment	1	1	2	Yes
High Voltage ITs	1	1	1	Yes
Revenue Metering	1	1	1	Yes
Insulators	2	2	N/A	Yes
Cables and Potheads	2	2	N/A	Yes
Batteries & Chargers	1	1	1	Yes
Grounding Systems	1	1	2	Yes
Capacitors	1	1	1	Yes
Buildings	1	1	1	Yes
Fences	1	1	1	Yes
Drainage and Geotechnical	1	1	1	Yes
Fire and Security	1	2	3	Yes

- Score of 1-2 Very Good - Only minor problems
- Score of 3 Fair - Some gaps or problems
- Score of 4-5 Poor - Significant problems

Table E2 Evaluation of Networks ACA Processes for P2 Assets

The results of the industry comparisons require little discussion. In all cases, Hydro One Networks is pursuing a program of asset condition assessment that is equal to or better than programs executed in forward-thinking utilities around the world. The ACA processes of Hydro One Networks have largely been demonstrated to be viable, in the sense that the data collected and the uses made of it are entirely appropriate to support the spending decisions that Hydro One Networks must make. Composite Health Indices have been recommended for Hydro One Networks use by the consultant for most of the asset groups. Health Indices provide a basis for assessing the overall health of an asset. Health Indices are based on identification of the modes of failure for the asset and its sub-systems, and then developing measures of generalized degradation or degradation of key sub-systems that can lead to end-of-life for the entire asset.

The data availability rankings require some clarification. Protection and Control facilities are generally replaced or repaired in response to failures, with no advance warning signals and repairs and replacements are generally undertaken on a modular basis. In the case of P&C, it was agreed that P&C facilities are not amenable to a formulation unless performance and obsolescence factors are included. When these parameters were added to the Health Index formulation, it resulted in the development of a very effective Health Index measure. The only assets ranked "fair" on this aspect were SF_6 Breakers, Metalclad Switchgear and Fire & Security. In the case of SF_6 breakers and metalclad Switchgear, the problem is that these breakers are on a 15-year maintenance cycle and only 5-6 years of usable data has been collected. In the case of Fire & Security, since a

formal condition reporting process for these assets is not in place, condition data was not available. These information gaps are not inconsistent with other utilities.

Of significance and applicable to all assets examined, is the lack of an effective updating process for condition data related to replaced components. This gap was managed manually by updating the replacement information to reflect asset replacements and should be automated to improve process effectiveness.

Most utilities manage Transmission Station Insulators and Transmission Station Cables and Potheads on a run-to-failure basis due to the high cost and low value of collecting information on these high volume assets. However, it is valuable to identify demographic characteristics and historical performance for evaluating risk and it is recommended that Networks redefine their process for acquiring and managing data for these asset classes.

E.3 Asset Condition Results

The condition of the Hydro One Networks assets has been evaluated in all circumstances where viable condition criteria are in place and sufficient condition data exists. Health Indices have been calculated for every asset with a recommended Health Index formulation and sufficient condition data to satisfy the minimum requirements for application of that formulation.

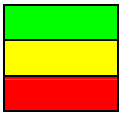
The results of the asset condition assessments for the P1 and P2 assets are presented in Tables E3 and E4, based on the Health Index formulations and the extrapolated test results.

Priority 1	ACA Results				
	Very Poor 0 - 30	**Poor 30 – 50**	**Fair 50 – 70**	**Good 70 - 85**	**Very Good 85 - 100**
Transformers	0.5%	2.8%	3.5%	14.0%	79.2%
GIS Equipment	5.3%	21.1%	15.8%	15.8%	42.1%
HV/LV OCBs	0.0/0.0%	0.0/0.1%	0.7/2.6%	20.4/22.0%	78.8/75.3%
ABCBs	0.0%	2.4%	4.7%	37.8%	55.1%
HV/LV Switches	0.0/0.0%	0.1/0.2%	5.7/3.9%	34.5/27.4%	59.7/68.5%
Operating Spares *	36.5%		8.7%	51.0%	
P&C	0.7/4.1%	8.7/38.7%	27.3/8.7%	28.2/23.1%	35.1/25.5%
Phase Conductors	0.8%	1.0%	17.0%	81.2%	-
Wood Structures	1.3%	8.4%	11.1%	27.4%	51.8%
U/G Cables	0.0%	0.0%	12.8%	53.7%	33.5%
ROW *	4.0%	35.3%	36.9%	18.7%	5.2%

<1% Minor deterioration, normal maintenance
1 to 5% Moderate deterioration, attention required
>5% Major deterioration, requires diligent and timely attention
* end-of-life definition is not applicable to this asset group

Table E3 ACA Condition Results for P1 Assets

Priority 2	ACA Results				
	Very Poor 0 - 30	Poor 30 – 50	Fair 50 – 70	Good 70 - 85	Very Good 85 - 100
HP Air Systems	0.0%	11.7%	14.3%	28.8%	45.2%
SF6 Breakers	0.0%	0.0%	0.0%	9.0%	91.0%
Metalclads	0.0%	3.8%	14.7%	14.1%	67.5%
Power Line Carrier	0.3%	1.9%	5.4%	12.4%	80.1%
High Voltage ITs	0.1%	0.4%	0.5%	9.3%	89.7%
Revenue Metering *	N/A	N/A	N/A	N/A	N/A
Station Insulators **	-	-	-	-	-
Cables & Potheads **	-	-	-	-	-
Batt/Chargers	1.8/0.3%	6.1/0.0%	0.0/1.0%	8.2/4.4%	83.9/94.3%
Station Grounding	25.0%	15.6%	25.0%	28.1%	6.3%
Capacitors	0.0%	0.3%	4.8%	43.9%	51.0%
Buildings	2.6%	4.0%	15.9%	24.1%	53.5%
Fences	2.3%	4.7%	16.7%	24.4%	51.8%
Drainage & Geotech	10.1%	16.8%	33.2%	23.4%	16.4%
Fire & Security **	-	-	-	-	-



<1% Minor deterioration, normal maintenance
1 to 5% Moderate deterioration, attention required
>5% Major deterioration, requires diligent and timely attention

* Asset Condition not applicable. Asset is replaced on seal expiry date

** Routine inspection is carried out to find and correct defects. There is insufficient condition data to populate a Health Index as it is not practical or cost effective to record "As found" condition for each asset.

Table E4 ACA Condition Results for P2 Assets

For some asset groups, maintenance and condition data has been collected for virtually every individual asset owned by Networks. In other asset classes, a smaller proportion of the total asset base has been tested and/or inspected, and the size and nature of the samples taken is sufficient to extend the results to the balance of the assets in that class through statistically relevant sampling.

A consistent approach has been used in developing the Health Index formulations, so that the meaning of the categories is broadly consistent across most of the "hard" assets – i.e., assets other than Rights-of-Way and Spares, for which a conventional end-of-life definition is not applicable.

In general terms, a "Very Poor" asset can be interpreted to be at or very close to end-of-life, requiring urgent attention in the form of a risk assessment potentially leading to asset replacement or a major overhaul. Assets in the "Poor" category can be interpreted as being close to end-of-life, requiring risk assessment potentially leading to replacement or significant maintenance expenditures in a 1 to 5-year time frame. Assets in "Fair" condition have experienced noticeable deterioration, and may survive for about another 5-10 years with regular maintenance and/or component replacements. Assets in the

"Good" category can be considered to have at least 10 to 20 years of service left, given normal maintenance expenditures. Assets in the "Very Good" category should survive for more than 20 years, given normal maintenance expenditures.

As might be expected, the vast majority of the assets owned by Networks are ranked in "Good" or "Very Good" condition, meaning that these assets are generally being managed effectively and are being maintained in a condition suitable for many more years of service. The same conclusion may be drawn from the relatively small proportion of assets found in "Very Poor" or "Poor" condition.

In general, concerns exist for those assets that are exhibiting greater then 1% in the poor to very poor categories, with more specific concerns highlighted below.

- GIS equipment, with 1 out of 19 units (5.3%) in "very poor" condition, will require replacement over the next 5 years to prevent impact on customers and the power system. In addition, 4 units (approximately 21.1%) will require increased monitoring/maintenance or possibly refurbishment, to ensure that its performance does not deteriorate further over the next five years.
- Protection & Control systems, with 0.7% of Protection and 4.1% of transmission RTUs at high risk of failure, require replacement over the next 5 years to prevent impact on customers and the power system. In addition, approximately 38.7% of the RTUs and 8.7% of protection systems will likely require increased monitoring/maintenance to ensure that their performance does not deteriorate further over the next five years and should be considered candidates for future replacement.
- Transmission wood pole structures, with 1.3% (547 structures) in very poor condition, require urgent attention. Also, the percentage of structures requiring replacement in a 5-year time frame is 8.4%. This level of deterioration is consistent with a mature wood pole plant that has a substantial number of poles entering the end of life category each year.

E.4 Field Audits

Field audits were undertaken for most of the P1 and P2 assets, to ascertain the degree of conformance of data collection activities to defined procedures and practices, and the degree of conformance of observed conditions to recorded field data and stored data.

In general, the auditors found that data being collected by field groups was in accordance with specifications and that there was good correlation between field observations and recorded data. Some minor discrepancies were observed but these followed no discernible pattern, and it has been concluded that no bias has been introduced in the overall condition results as a result of these minor discrepancies.

E.5 EPRI Solutions USA – Industry "Best Practices" Review

EPRI Solutions USA completed an independent industry best practice review of ACA approaches used by leading utilities. For each equipment group, the review focused on the advances in industry best practice, technologies and processes that have occurred in the last few years. In general, these observations, remarks and commentary were consistent with practices and processes known or already in place at Hydro One Networks. The entire report, "Industry Best Practice Review for Hydro One" is attached as Appendix 2.

SUMMARY REPORT

1. Introduction

Hydro One Networks Inc. (Networks) retained Hatch Acres, in association with PowerNex, to prepare a comprehensive assessment of the condition of the Transmission assets owned by Networks. This assessment took place in the spring of 2006.

The scope of the ACA project, as set out in Terms of Reference issued by Networks, is as follows:

1. Investigate the modes of degradation and failure for each of the asset classes in the Transmission systems owned by Networks.

2. Review the asset condition assessment processes employed by Networks to measure the condition of the assets, and benchmark these processes against those employed by other utilities around the world.

3. Recommend asset condition criteria, end-of-life criteria and Health Indices for use by Networks in their asset management activities.

4. Assess the adequacy of the available condition data in preparing an objectively verifiable assessment of asset condition, and recommend measures to close any identified gaps in the existing condition data.

5. Evaluate the condition of Networks asset base, using the recommended criteria and the available condition data.

This Summary Report documents the methodology employed in the investigation and the philosophical approach used, along with summary results for all 43 Transmission asset classes.

Recognizing that to gather detailed condition information on every individual asset and every "nut and bolt" is both practically and economically not feasible, all Transmission assets were grouped into 43 asset classes and prioritized into three categories, Priority 1 (P1), Priority 2 (P2), and Priority 3 (P3). These are based on their value to the business (in terms of reliability, customer, finance, health & safety, regulatory/legal/environment), which determines the importance of acquiring the condition information. P1 assets (11 asset classes) represent the highest priority assets and are of high value (in terms total sustainment program expenditures) and high risk to the business. P2 assets (15 asset classes) are second in priority with moderate value and high risk; and finally P3 assets (17 asset classes) are lowest in priority with lower value and risk to the business. This report presents the condition assessment results of the P1 and P2 assets. Limited information is provided on the P3 assets because acquiring asset condition information on these assets is of "low" value for any of the following reasons:

- The assets are of low dollar value in terms of ongoing investments and it is not cost effective or practical to collect ACA information on these assets e.g. Station Insulators.

- When these assets fail, risks are considered relatively low and managed process exists to quickly identify and repair or replace assets that have failed, or are about to fail, e.g. underground cables and potheads.

The assets included in each asset group (P1, P2 and P3) and the corresponding section numbers of the report dealing with these assets are listed in the following tables. It is noted that Hatch Acres completed the comprehensive asset condition assessment for all P1 and P2 assets in accordance with the scope of work. In the case of P3 assets, Hatch Acres was responsible for a "best practice" review, general review and reformatting of Networks documents.

P1 Assets

	DESCRIPTION	SECTION NO.
Tx Stations	Transformers	3.1.1
	Gas Insulated Switchgear Equipment	3.1.2
	Oil Circuit Breakers	3.1.3
	Air Blast Circuit Breakers	3.1.4
	HV/LV Switches	3.1.5
	Operating Spares	3.1.6
	Protection & Control Systems	3.1.7
Tx Lines	Phase Conductors	3.1.8
	Wood Pole Structures	3.1.9
	Underground Cables	3.1.10
	Rights-of-Way (ROW)	3.1.11

P2 Assets

	DESCRIPTION	SECTION NO.
Tx Stations	Air Pressure Air Systems	3.2.1
	SF6 Circuit Breakers	3.2.2
	Metal Clad Switchgear	3.2.3
	Power Line Carrier	3.2.4
	HV Instrument Transformers	3.2.5
	Revenue Metering	3.2.6
	Station Insulators	3.2.7
	Station Cables and Potheads	3.2.8
	Batteries and Chargers	3.2.9
	Station Grounding Systems	3.2.10
	Capacitor Banks	3.2.11
	Station Buildings	3.2.12
	Fences	3.2.13
	Drainage and Geotechnical	3.2.14
	Fire/Security Systems	3.2.15

P3 Assets

	DESCRIPTION	SECTION NO.
Tx Stations	Protection System Monitoring	3.3.1
	Buses	3.3.2
	Surge Protection	3.3.3
	AC/DC Service Equipment	3.3.4
	HV/LV Station Structures	3.3.5
	HVAC	3.3.6
	Boilers and Pressure Vessels	3.3.7
	Oil Containment Systems	3.3.8
	Oil and Fuel Handling Systems	3.3.9
	Microwave Radios	3.3.10
	Fibre Optics	3.3.11
	Metallic Cable	3.3.12
	Site Entrance Protection Systems	3.3.13
	Teleprotection Tone Equipment	3.3.14
Tx Lines	Line Steel Structures	3.3.15
	Line Shieldwire and Hardware	3.3.16
	Line Insulators and Hardware	3.3.17

2. Methodology

2.1 Asset Descriptions

A detailed description has been prepared for each of the 26 assets in the P1 and P2 and for some in the P3 asset classes investigated as part of this study. The descriptions focus on the nature of the assets, their function within the power system, and key characteristics of the assets including the critical subsystems that make up the assets.

2.2 Asset Demographics

Detailed demographics were prepared for all 26 assets in the P1 and P2 asset classes, focusing on the total population size of each asset, and the distribution of this population by various salient asset characteristics, such as asset types, operating characteristics (voltage ratings, current or power ratings), ages, and geographic locations. The objective of the demographic breakdown was to quantify population sizes within definable groupings, which then form the basis for extrapolation of sampled condition results to the respective target populations.

The source data for the Transmission demographic analyses was from a variety of data sources, including the Power System Database (PSDB), the Passport Work Management system, Line Asset Surveys and the Transmission Station ACA Survey (for station assets). The consultant did not directly access the raw data, but instead relied on Hydro One Transmission staff to extract needed data.

2.3 Review of Asset Condition Assessment Process

Hatch Acres and PowerNex carried out a review of asset condition assessment processes for each of the P1 and P2 asset classes. This review was carried out in comparison with an idealized framework for a hierarchical and prioritized asset condition assessment process, as described in Section 2.3.1. The specific elements of the review include:

- Analysis of asset deterioration and failure modes,
- Description of the Networks condition assessment process,
- Review of industry practices,
- A review of Networks practices against industry practices,
- Recommendation of practices for use by Networks,
- Analysis and recommendation of composite Health Indices.

For P3 asset classes only a review of industry “practices” was carried out.

2.3.1 Overview of Asset Condition Assessment Processes

Throughout the world, electricity companies are undergoing major change due to privatization or changes in regulation. While the detail of these processes varies from country to country, some of the effects are almost universal. Essentially, the engineering

activities of utility companies have been subject to much closer scrutiny and there is great pressure to reduce cost while maintaining or improving system performance. As a consequence of this, there is greater need to provide technical and economic justification for engineering decisions and spending plans. The analysis outlined in this report specifically focuses on the technical justification, namely asset condition as it is considered by the industry and engineering judgment on the risks associated with certain condition levels. Engineering judgement with input from other utilities was applied to assess risks concerning performance, reliability, technical obsolescence, customers, health and safety, environment, etc.

This increased need for utilities has resulted in a need to understand the condition of assets in more detail than was previously necessary. Throughout the world, electricity companies are attempting to move towards condition-based management strategies for their major assets. This requires a very good understanding of the present condition and how this relates to future performance and end-of-life. While this is a very understandable and necessary approach, there are some significant difficulties in developing and implementing condition assessment processes to deliver the outcomes required.

Electricity transmission systems are made up of a very large number of individual components, which are widely distributed. Conventionally, in order to make a decision about the future of an individual asset, relatively detailed condition information is required. This immediately raises a very significant practical problem for electricity companies. To attempt to gather detailed condition information about every individual asset would be both practically and economically infeasible. In order to overcome this situation, a hierarchical approach to condition assessment must be applied, to enable prioritization and focused gathering of detailed condition information.

There are a number of ways in which this prioritization and focusing can be achieved. These include the use of existing knowledge and simple, low cost, condition assessment procedures to progressively identify items at high risk, so that resources necessary for detailed condition assessment can be concentrated on these items. Alternatively, a sampling approach may be adopted within definable subgroups of assets, again to limit the number of pieces of equipment subject to detailed condition assessment.

A) Review of Asset Deterioration & Degradation Processes

When considering asset condition assessment (ACA) it is important to understand the differences between routine defect management and regular maintenance versus long-term asset degradation and asset condition assessment.

Defects are usually well defined and associated with failed or defective components that affect operation and reliability of the asset throughout its life. These do not normally affect the end-of-life of the asset itself, provided the failure frequency is low and if detected early and corrected. Such defects are routinely identified during inspection and are dealt with by corrective maintenance activities that involve repair or replacement of the failed components, to ensure continued reliable operation of the asset.

Long term degradation that ultimately contributes to asset end-of-life is not normally discovered through routine inspection. The purpose of asset condition assessment is to detect and quantify the extent of such long-term degradation and to provide some means of estimating remaining technical asset life with due consideration to other end-of-life factors such as equipment obsolescence, spare parts availability, maintenance costs, and asset performance. This includes determining assets that are "high risk" or are at or near end-of-life, that will require significant expenditures to repair, refurbish or replace them.

A good understanding of the asset degradation and failure processes is vital if condition assessment procedures are to be effectively applied. It is important to identify the critical modes of degradation, the nature and consequences of asset failure, and, if possible, the time remaining until the asset is degraded to the point of failure. Unless there is a reasonable understanding of the degradation and failure processes, it is impossible to establish sensible assessment criteria or to define appropriate end-of-life criteria.

B) Review of Networks ACA Processes

Existing Networks condition assessment procedures have been identified through review of Networks documentation and interviews with Networks asset specialists. The primary source documents for these reviews were Networks procedure documents ("HO" documents) that describe the maintenance practices, and specifications for carrying out maintenance work and assessing Asset Condition.

Networks carries out its asset condition assessment using (1) a Macro Process that describes the overall ACA objectives, prioritization and process to be used for assessing the condition of all transmission assets; and (2) a Micro Process that details the steps for assessing the asset condition for a specific asset class. These processes are illustrated in Figures 2.1 and 2.2 and described below.

B1) Networks' Macro ACA Process

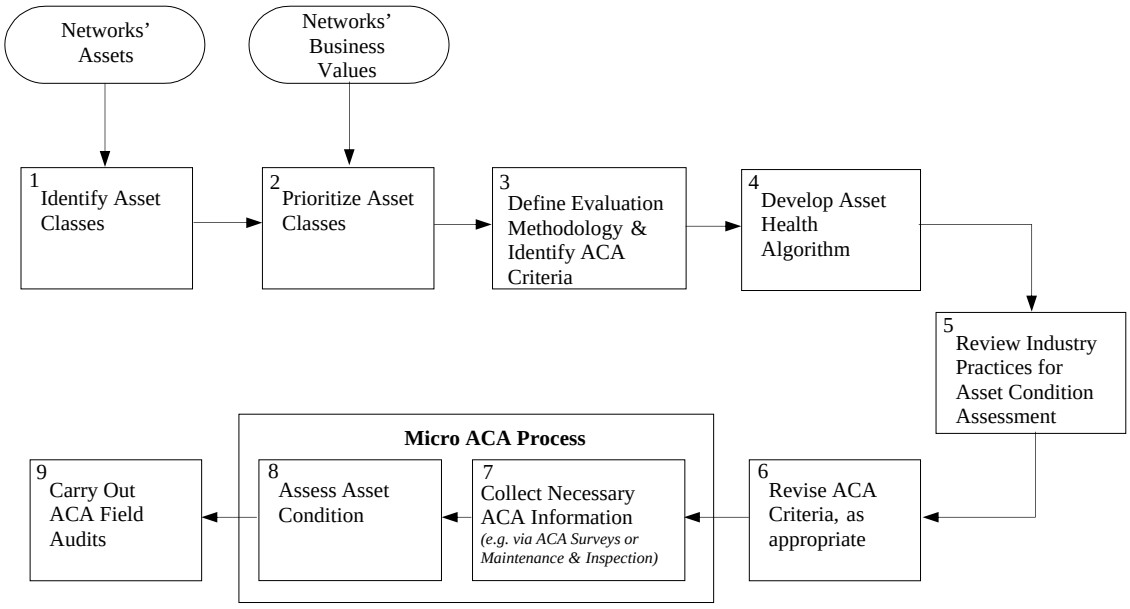


Figure 2.1: Networks' MACRO Asset Condition Assessment Process

The application of condition assessment techniques to the assets of the transmission system can only be viewed objectively as part of an overall ACA process as shown in Figure 2.1. The ACA process defines objectives; prioritizes assets for which ACA is to be carried out; identifies the asset degradation and failure modes to determine condition and end-of-life criteria; considers utility "best" practices; assesses asset condition; and verifies that the asset condition assessment results reflect actual field conditions. The Networks' MACRO ACA process follows the nine major steps described below.

1. Identify asset classes and demographics.

2. Prioritize the asset classes (P1, P2, P3) based on the value the assets represent to the business, which in turn determines the importance of acquiring condition information.

3. Define the asset information needed to determine and evaluate asset condition against predefined condition indicators, expected results or specifications for all P1 and P2 asset classes.

4. Develop an Asset Health algorithm for each asset type based on predefined condition indicators and the appropriate weighting factors to consistently analyze and assess the overall condition of an asset population.

   $HI = (C_1 \times W_1 + C_2 \times W_2 + C_3 \times W_3 \ldots..) / \text{Maximum Score}$
   where HI is Health Index normalized to 100%
   $C_1, C_2, C_3 \ldots\ldots$ are condition ratings for the predefined condition indicators
   $W_1, W_2, W_3 \ldots..$ are weighting factors for the predefined condition indicators

5. Review industry practices and the asset deterioration process; the failure modes and consequences (including any mean time to failure trends); and define the asset condition and asset end-of-life criteria for all P1 and P2 asset classes.

6. As part of continuous improvement, revise and update existing asset condition documentation (both condition information and decision criteria) on all P1 and P2 asset classes and incorporate into the asset health algorithms the additional condition information required to adequately assess asset condition.

7. Collect the necessary asset condition information. This information may be obtained from existing databases or through regular preventive maintenance activities, testing, surveys or inspections. Define the measurements, and coordinate and schedule the necessary work with Hydro One Networks staff to collect statistically relevant population samples of asset condition

information that will enable a condition assessment of the asset population in question.

8. Analyze the asset condition and performance information to identify specific asset population and condition, performance trends and high risks and impacts of asset condition on meeting business objectives, including service quality standards.

9. Verify and confirm that the asset condition assessment results reflect actual field condition.

B2) Networks' Micro/Detailed ACA Process

A structured prioritization stage is not only required at the macro level, but also at the micro level that details the ACA process and objectives for each class of asset. Due to the enormous number of individual assets involved in transmission systems, prioritization is required to reduce the number of assets for which more detailed condition assessment procedures are applied. The approach results in cost effectively identifying / prioritizing the high risk assets within each asset class, including those assets that are at or near end-of-life. The generic micro/detailed ACA process carried out for each asset class is illustrated in Figure 2.2.

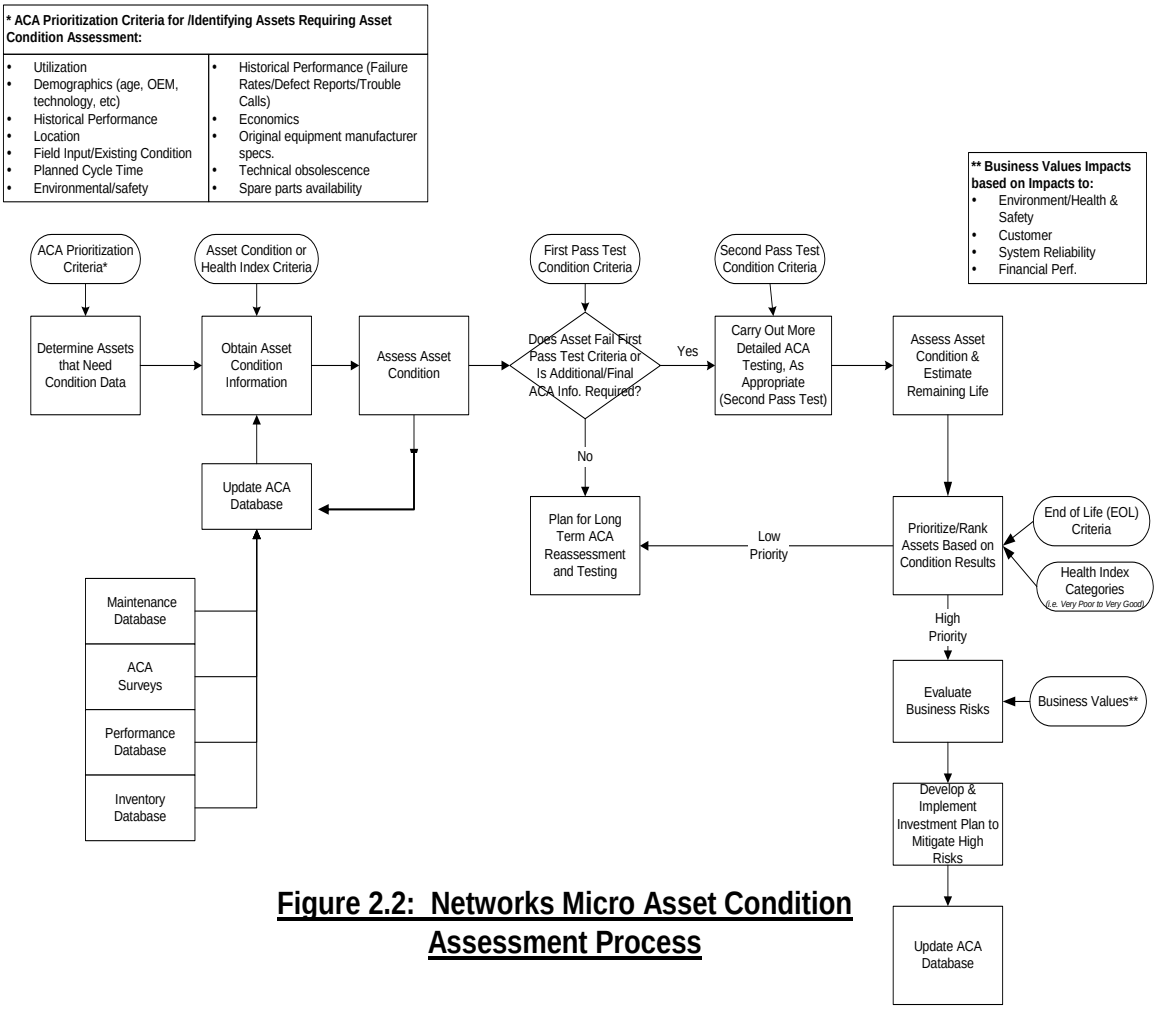


Figure 2.2: Networks Micro Asset Condition Assessment Process

The ACA process begins by identifying or selecting high risk asset candidates for testing based on such factors as utilization, demographics, historical performance (failure rates and defect reports), economics, original equipment manufacturer specifications, technical obsolescence, spare parts availability, environmental/safety concerns, field input, planned cycle time, and existing condition information available. For example, there may be an urgent requirement to collect asset condition information on assets that were installed forty years ago or have been heavily used versus assets that were installed within the last five years or lightly used. If the available information does not enable clear prioritization, a sampling process is used to achieve the necessary level of understanding for prioritizing asset condition assessment work.

An asset condition composite Health Index is a very useful tool for representing the overall health of a complex asset. Transmission assets are seldom characterized by a single subsystem with a single mode of degradation and failure. Rather, most assets are made up of multiple subsystems, and each subsystem is characterized by multiple modes of degradation and failure. Depending on the nature of the asset, there may be one dominant mode of failure, or there may be several independent failure modes. In some cases, an asset may be considered to have reached end-of-life only when several subsystems have reached a state of deterioration that precludes continued reliable and economic service. The composite Health Index combines all of these condition factors using a multi-criteria assessment approach into a single indicator of the health or condition of the asset. Hatch Acres and PowerNex applied composite Health Indices for all of Networks' transmission assets using the process outlined in Appendix 1.

Information on each asset condition criterion that is required for computing the composite Health Index scheme may be collected from a number of sources including, ACA surveys, Maintenance, Performance and Inventory databases. This allows an assessment of the overall asset condition to be carried out using the Health Index algorithm.

These results allow the condition of the assets to be ranked and categorized using the "first pass test" condition criteria to define whether the assets are in "Very Good", "Good", "Fair", "Poor" or "Very Poor" condition. These categories are determined based on the results of the Health Index score and their correlation to the estimated remaining life of the assets. The lower risk assets (i.e. "Very Good" to "Good" condition) typically have more than five years of remaining life and are scheduled for long term ACA reassessment and testing. Assets in the "Fair" category require increased diagnostic testing, component replacement or possible complete replacement before 5 years, depending on criticality. The higher risk assets (i.e. "Very Poor" to "Poor" condition) have typically less than 5 years of remaining life and these assets may undergo additional, more detailed and more expensive, condition assessment procedures to ascertain their actual condition and to estimate remaining life.

The progression from the "first pass test" to the application of detailed condition assessment (i.e. "second pass test") may proceed in a number of discrete steps that gradually reduce the number of assets for which more detailed condition assessment procedures are applied. Transmission Phase Conductors and Transmission ROW are examples of assets for which "second pass tests" are applied.

The final stage of the process is to identify and prioritize high risk assets, including those assets at end-of-life, and to evaluate their impact on business. This provides the basis of capital and O&M investments needed to mitigate and manage the risks over time.

2.3.2 Comparison of Networks' Processes With Industry Practices

As part of the Hatch Acres team, EPRI Solutions USA completed a "best practice" review of advances in industry best practices, technologies and process that have occurred in the last few years. The report is included as Appendix 2. In general, these observations, remarks and commentary are consistent with practices and processes known or already in place at Hydro One Networks.

In addition to the review provided by EPRI Solutions USA, Hatch Acres, based on it's own experience, compared Networks practices with those employed by utilities around the world,. This exercise has been conducted informally, through information known to the Hatch Acres project team through prior project involvement and augmented by contacts with utility executives in Canada and the United States.

The practices of the following organizations were included as part of the "best practices" review:

Canadian Utilities

- TransEnergie, Quebec
- Newfoundland Power
- Nova Scotia Power
- NB Power
- Hydro-Quebec
- Manitoba Hydro
- SaskPower
- EPCOR
- Aquila, former Utilicorp
- BC Hydro
- Great Lakes Power Ltd.
- Hydro-Ottawa
- Toronto Hydro
- Enersource (Mississauga Hydro)
- Acton Hydro

American Utilities

- ConEdison, New York
- Entergy, New Orleans
- New York Power Authority, Utica NY
- Duke Energy, Charlotte, NC
- Seattle City Light
- Puget Sound Energy

UK Utilities

- National Grid Company
- Scottish Power
- Scottish and Southern Energy
- United Utilities
- Northern Electric
- Yorkshire Electricity
- East Midlands Electricity
- GPU
- Western Power Distribution
- 24seven
- Seeboard
- Northern Ireland Electricity

European Utilities

- Stattnett, Norway
- Vattenfall, Sweden
- Fortrum, Finland
- EGE, Czech Rep
- EDF, France
- ESB, Ireland

Australian Utilities

- Orion Energy, NZ
- Mercury Power, NZ
- Integral Energy, Aus
- Energy Australia, Aus
- TransPower, Aus
- TransGrid, Aus
- Powercorr

Hatch Acres carried out a review of condition assessment approaches for all of the assets in the study. Not all utilities were contacted in regard to every asset class. Rather, the comparison focused on prior project involvement and on business relationships between particular team members and specialists within the various utility organizations. However, each of the organizations listed above served as a point of reference for several classes of assets, and every asset class was compared against at least three organizations within each geographic area. Some of the 2006 process changes are the result of such comparisons.

The review focused on the types of testing and inspection undertaken for each asset in question, the frequency of testing and inspection, and on the uses made of maintenance and condition assessment data. Particular attention was paid to the extent of development of composite Health Indices for different classes of assets, although most utilities were

reluctant to reveal the details of the algorithms used for such Health Indices, as this is considered proprietary information.

2.3.3 Analysis of Practices for Networks

Building on the insights gleaned from the review of deterioration processes and industry practices, Hatch Acres reviewed the practices in use by Networks and other alternative practices. This review, which can be seen in the individual asset sections, included an analysis of available testing techniques, and analysis of improvements, which might be realized by Networks through the adoption of additional or different tests. The review also included an evaluation of suitable condition criteria arising from the tests carried out by Networks.

2.4 Analysis of Asset Condition

2.4.1 Analysis of Specific Condition Indicators – Sampled Assets

The first step in the analytical phase of the study was to evaluate the condition of each asset in respect to the specific condition rating (CR) indicators. This involved screening the available condition data and summarizing the condition results for each condition criterion associated with the Health Index. Valid asset sample results were tabulated for quantities of assets found in the CR1 (i.e. good condition) through CR4 (i.e. poor condition) ratings reported via maintenance activities and ACA surveys. This rating scheme was applied specifically for station assets, for line assets similar methodology was applied to the somewhat different assessment scheme.

In most cases, test and inspection data was available either for the full population of the total asset base or for a statistically significant sample of the total population.

2.4.2 Analysis of Overall Asset Condition – Sampled Assets

The next step was the calculation of a Health Index for each sampled asset, and the assignment of each sampled asset to one of the five health categories of asset condition ("Very Good", "Good", "Fair", "Poor" and "Very Poor"). The results were tabulated for all sampled assets.

2.4.3 Extrapolation of Overall Asset Condition to Entire Asset Base

The final step in the analysis was the extrapolation of the condition results for the sampled condition data to the entire population of similar assets. The extrapolation methods used in this exercise varied from asset to asset, depending upon the bias of the sample. In most cases, the sample was randomly chosen and the condition results were directly extrapolated to the entire population. In other cases, some bias was involved in the selection of the samples, which was accounted for in the extrapolation methodology. But in every case, care was taken to ensure that a statistically relevant sample of asset condition assessments were available prior to extrapolating the results. The methods of

extrapolation for each asset class are stated in the detailed asset condition assessment reports.

2.5 Audit of ACA Data Collection Process

The final task in the study was the audit of the ACA data collection process. The objective of the audit was to assess the effectiveness of the ACA process by examining the data collection process (via maintenance activities or ACA surveys), the quality/integrity of data collected from the field and comparing it to localized data repositories and central databases.

Specific elements of the ACA process were reviewed as part of the audit. These included:

a) Form and detail of the request for information to field staff.
b) Collection of information by field staff in a timely manner.
c) Procedures used by field staff, and the accuracy of the data collected.
d) Data entry or concentration for return to Networks.
e) Information available (electronically) to the Asset Managers and Planners within the Networks organization.

Field audits were undertaken for transmission assets and the results are presented in Section 4 of this report.

3. Analysis of Transmission Asset Condition

3.1 P1 Assets

3.1.1 Transmission - Transformers

Transformers are devices whose primary purpose is to either step-up or step-down voltage. Transformers change alternating current (AC) electric energy at one-voltage level to AC electric energy at another level through the action of a magnetic field. A transformer consists of two or more coils of wire wrapped around a common ferromagnetic core. One of the transformer windings is connected to the source of the AC electric power called the primary or input winding, and the second winding connected to the load is called the secondary or output winding. The main connection between the primary and secondary windings is the common magnetic flux present within the transformer's core. A shunt reactor is very similar to a transformer but has only one winding and is used to control voltage on the transmission system. Both transformer and shunt reactors are covered here.

Networks has 729 transformers and reactors in its transmission substations operating at various voltages up to 500 kV. Approximately 96% of these transformers and shunt reactors are used in the 115 kV and 230 kV systems and approximately 34% of these devices are over 40 years old as shown in Table 3.1.

		Age Group								
	Voltage Class	**0-10yrs**	**11-20yrs**	**21-30yrs**	**31-40yrs**	**41-50yrs**	**>50yrs**	**# Unknown**	**Total**	**%**
Autotransformers	**115kV**	0	0	0	0	1	1	0	2	
	230kV	4	11	15	25	14	14	1	84	
	345kV	0	0	2	2	0	0	0	4	
	500kV	5	12	4	20	0	0	0	41	
Sub-Total		9	23	21	47	15	15	1	131	18.0%
2-3 Winding Transformers	**115kV**	22	23	15	59	76	103	4	302	
	230kV	9	70	39	114	30	0	3	265	
Sub-Total		31	93	54	173	106	103	7	567	77.8%
Phase Shifters	**230kV**	2	0	0	0	1	0	0	3	
	regulator - 230kV	0	0	1	1	0	0	0	2	
Sub-Total		2	0	1	1	1	0	0	5	0.7%
Shunt Reactors	**<50kV shunt**	4	7	4	5	5	0	1	26	3.6%
Grand Total		46	123	80	226	127	118	9	729	100.0%
%		6.3%	16.9%	11.0%	31.0%	17.4%	16.2%	1.2%	100.0%	

Table 3.1 - Transmission Station Transformer Demographics

Based on a process review carried out by Hatch Acres, the program of inspection, testing and maintenance Networks has implemented for their transmission transformers, is rigorous. The frequency and content of inspection and testing indicates Networks' processes are thorough and compare favourably with similar programs in other leading utilities. The recent decision to develop the condition assessment process to derive an

overall Health Index is consistent with the thinking in more proactive forward thinking electricity utilities.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived based on an asset condition survey and information gathered via regular maintenance activities on nine condition parameters that measure transformer degradation. This includes four major condition parameters (Dissolved Gas Analysis, Standard Oil, Furan, Doble test data) that are generally accepted in the industry to be significant measures for assessing the health/condition of power transformers. Weightings were appropriately selected to ensure that the overall health/condition is driven by the condition of the main functional components, rather than the lesser ancillary systems/components.

Condition Based Health Indices have been developed for approximately 83% of the total population of transmission station transformers and extrapolated to the full population on a linear basis. The extrapolated results are shown in Figure 3.1.

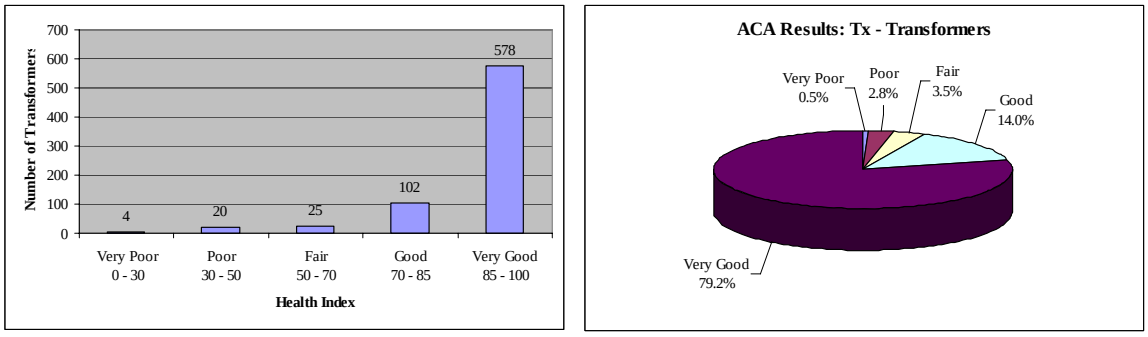


Figure 3.1 - Summary of Extrapolated Condition Assessment Results
Transmission - Power Transformers and Shunt Reactors

Based on the above, approximately 0.5% of the transmission station transformers on the Networks' system are at a very high risk of failure and replacement is required as soon as possible. Approximately 2.8% are at significant risk of failure and will likely require replacement/refurbishment in the next 5 years to correct widespread significant deterioration. In addition, approximately 3.5% will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future replacement. In the "fair" and "poor" categories moisture reduction, and the addressing of generic design deficiencies such as tank weld cracks are key factors driving expenditures. The remaining 93.2% of the transmission station transformers are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.1.2 Transmission – Gas Insulated Switchgear (GIS) Equipment

Gas insulated switchgear (GIS) is an assembly of switchgear in which all of the major components, except for the entrance bushings, are housed within a grounded metal enclosure containing pressurized sulphur hexafluoride (SF_6) gas. The GIS is compartmentalized in such a manner as to facilitate maintenance of individual components with minimum disruption to adjacent components and also to minimize gas losses in the event of an uncontrolled rupture of an enclosure. Many compartments are fitted with pressure relief devices. GIS is very compact compared to air insulated substations (AIS) and is applied at all the voltage levels, LV, HV and EHV on the Networks system. Gas insulated switchgear is an attractive alternative to an outdoor AIS, particularly where space constraints and protection from harsh environmental conditions are a consideration.

There are three 500 kV, five 230 kV and one 115 kV GIS currently in operation on the Networks system, with the oldest being commissioned in 1977. In addition, there are four low voltage GIS installed on the Networks system, all within the past three years. All are indoor installations. Some are in heated buildings, while others are in unheated buildings. Several stations have extensive outdoor runs of GIS bus. The GIS incorporates some or all of the following components:

GIS Breaker		Voltage Class					
		<50 kV	115 kV	230 kV	500 kV	Total	(%)
Age Group	0-10yrs	44	0	0	0	44	34.6%
	11-20yrs	0		4	6	10	7.9%
	21-30yrs	0	8	31	34	73	57.5%
	>30yrs	0	0	0	0	0	0.0%
	Total	44	8	35	40	127	100.0%
	(%)	34.6%	6.3%	27.6%	31.5%	100.0%	

GIS Switch		Voltage Class					
		<50 kV	115 kV	230 kV	500 kV	Total	(%)
Age Group	0-10yrs	88				88	29.7%
	11-20yrs		20	10	15	45	15.2%
	21-30yrs			78	85	163	55.1%
	>30yrs					0	0.0%
	Total	88	20	88	100	296	100.0%
	(%)	29.7%	6.8%	29.7%	33.8%	100.0%	

GIS BUS Compartments		Voltage Class					
		<50 kV	115 kV	230 kV	500 kV	Total	(%)
Age Group	0-10yrs	0	0	0	0	0	0.0%
	11-20yrs	0	0	0	0	0	0.0%
	21-30yrs	0	0	0	0	0	0.0%
	>30yrs	0	0	66	139	205	100.0%
	Total	0	0	66	139	205	100.0%
	(%)	0.0%	0.0%	32.2%	67.8%	100.0%	

Table 3.2 – Transmission GIS Equipment Demographics

Table 3.2 illustrates the demographics of the principal GIS components:

- Circuit breakers
- Switches - disconnect and ground switches
- Bus

Other equipment includes SF_6 / air entrance bushings, SF_6 / cable terminations, SF_6 / transformer terminations, instrument transformers, current and voltage transformers, surge arresters and protection, control, and monitoring equipment.

Station	Rating kV/kA	Qty CBB	Qty Exit Bus (m)	In Service Date
CLAIREVILLE TS	550/80	4		1993
CLAIREVILLE TS	550/80	6	1000	1978
CLAIREVILLE TS	550/80	6	1030	1979
CLAIREVILLE TS	550/80		1870	1993
CLAIREVILLE TS	250/80	4		1992
CLAIREVILLE TS	250/80	7	520	1979
CLAIREVILLE TS	250/80	6		1980
CLAIREVILLE TS	250/80		3000	1980
CLAIREVILLE TS	250/80		2330	1993
MILTON SS	550/80	8	1450	1980
MILTON TS	550/80		1116	1994
BOWMANVILLE SS	550/80	14	2700	1985
BOWMANVILLE	550/100	2	310	1994
HAWTHORNE TS	550/63		1500	1989
HAWTHORNE TS	550/63		1500	1992
TRAFALGAR TS	250/80	12		1977
MERIVALE TS	250/63	6		1979
MERIVALE TS	250/63		210	1985
MERIVALE TS	250/63		430	1979
TALBOT TS	250/63		100	1982
DOFASCO	250/63		100	1980
CECIL TS	138/55	8	115	1984
MIDHURST TS	52/20	11		2004
CARDIFF TS	36/20	13		2004
DUNDAS TS	36/20	9		2003
WINONA TS	36/20	11		2003
	Totals:	**127**	**19,281**	

Table 3.3. Location, Ratings and In-Service data for Networks HV and LV GIS

Networks' management processes for GIS equipment are very similar to those used in other utilities. Routine maintenance is based primarily on manufacturers' recommendations with some modifications to take account of specific issues in individual types of equipment. Networks has had many early life issues to deal with due to their early entry into GIS facilities. This has necessitated a higher level of proactive attention than for most other utilities.

The most significant issue for Networks' GIS population was the purchase and installation of "prototype" designs during the early years of development. This has led to significant problems. Networks has progressively addressed the highest risk issues, applying remedial action and redesign where appropriate. This has significantly improved the performance of their GIS equipment but failure rates still remain higher than for equipment installed in other utilities. Management of these early life issues remain the most significant issue for this type of equipment.

The Health Index assessment process for Networks HV GIS was performed using a combination of visual inspections at each site and a detailed review of previous maintenance, operation and failure records and analysis of failure reports and other relevant documentation. It is recognized that complete visual inspection is not feasible for many GIS components, except when carried out in conjunction with major maintenance. However, considerable value was added to the assessment by combining qualitative and quantitative inputs from a variety of sources. Information on known problems and resolutions, establishing whether original components have been upgraded or replaced since their initial installation, failure, defect and maintenance records, and, the anecdotal experience of field staff who have maintained and upgraded the GIS for several years, were all useful information sources. Thus the condition is inferred by combining the visual inspection with all other sources of anecdotal and documented records. The results obtained from these data sources were used to formulate an overall Health Index for each of the HV GIS assets identified in Table 3.2 above, and a summary of the overall results are shown in Figure 3.2 below. No condition data was collected on the LV GIS since they have only recently been installed.

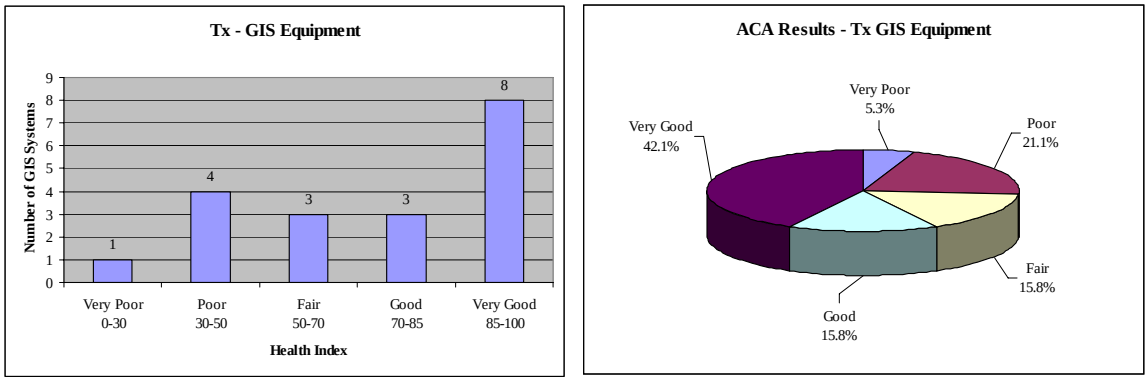


Figure 3.2 – Summary of HV GIS Equipment Health Index Results

Figure 3.2 summarizes the results of the Health Index evaluation for all HV switchgear and buses, which clearly identifies only one GIS in the "very poor" category. This

230kV GIS has degraded such that it is no longer performing safely and reliably, and because of its technical complexity and lack of OEM support, it cannot be economically restored to an adequate level of safety and performance. Corrective action requires a replacement as soon as possible in order to reduce the risk of major system disruption. Refurbishment programs have been planned for the four units identified as being in the "poor" category. Reliability issues with several other GIS are being dealt with by refurbishment programs carried out on an economic basis.

3.1.3 Transmission – Oil Circuit Breakers

Oil Circuit Breakers (OCBs) are installed on the power system to interrupt load and fault currents and to isolate power equipment to facilitate maintenance. An OCB consists of either one or three steel tanks filled with insulating oil in which operating contacts are immersed. These contacts are enclosed in an arc control "pot" which is designed to facilitate rapid extinction of the electrical arc during an interruption.

Networks has 2084 OCBs in its transmission substations operating at voltages up to 230 kV. Approximately 70% of these are providing service at voltages below 50 kV, 19% at 115 kV and the remaining 10% at 230 kV. The majority of these OCBs (58 %) are 20 to 40 years old and about 20% are more than 40 years old as shown in Table 3.4.

		Voltage Class				
		<50 kV	115 kV	230 kV	Totals	(%)
Age Group	0-10 yrs	114	58	6	178	8.5%
	11-20 yrs	171	93	5	269	12.9%
	21-30 yrs	237	47	65	349	16.7%
	31-40 yrs	664	93	105	862	41.4%
	41-50 yrs	196	71	29	296	14.2%
	>50 yrs	80	39	5	124	6.0%
	unknown	6			6	0.3%
	Total	1468	401	215	2084	100.0%
	(%)	70.4%	19.2%	10.3%	100.0%	

Table 3.4 - Oil Circuit Breaker Demographics

Based on the process review carried out by Hatch Acres Networks has followed a path that is similar to other major utilities with respect to inspection and diagnostic testing as part of preventative maintenance activities. Networks' process contains all the necessary elements for managing a large fleet of OCBs similar to other leading electricity companies. The existing activities include the same range of tests applied at approximately the same frequency. Overall, Networks' maintenance based program is consistent with good practice and, in some cases, is more rigorous than in many other leading utilities. The process used by Networks to determine the condition of the OCBs in its transmission system and the process used to develop a Condition Based Health Index is judged to be effective. The use of the Health Index is a significant development that enables condition information to be used in a consistent manner in the end-of-life decision making process.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for OCBs based on the results of an asset condition survey and information gathered via regular maintenance activities on eleven condition parameters that measure OCB degradation. This includes major condition parameters associated with the main OCB functional components of OCBs (e.g. bushings, tank, electrical and mechanical systems) and ancillary systems that are generally accepted, in industry, to be significant measures for assessing the overall health/condition of OCBs. Weightings are appropriately selected to ensure that the overall health/condition is driven by the condition of the main functional components, rather than the lesser ancillary systems/components.

Condition Based Health Indices were developed for approximately 92% of the total population of OCBs and extrapolated to the full population of 2,084 breakers. The extrapolated results are shown in Figure 3.3 for Low Voltage (LV) OCBs and Figure 3.4 for High Voltage (HV) OCBs.

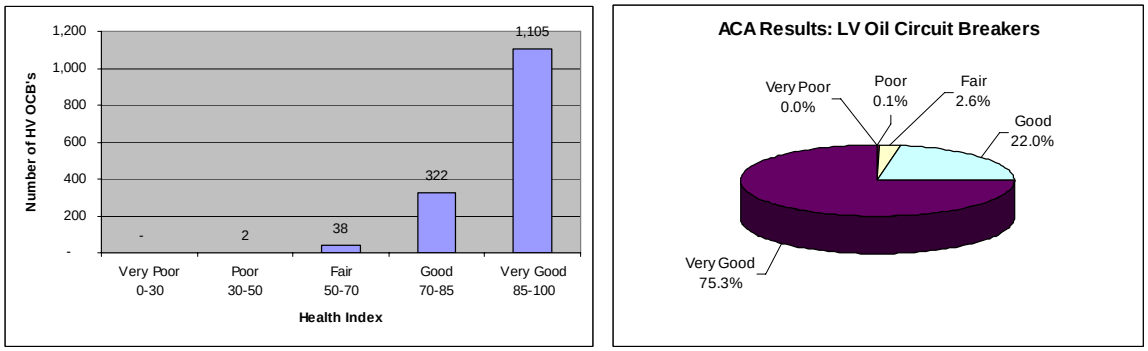


Figure 3.3 - Summary of Extrapolated Condition Assessment Results Transmission – LV Oil Circuit Breakers

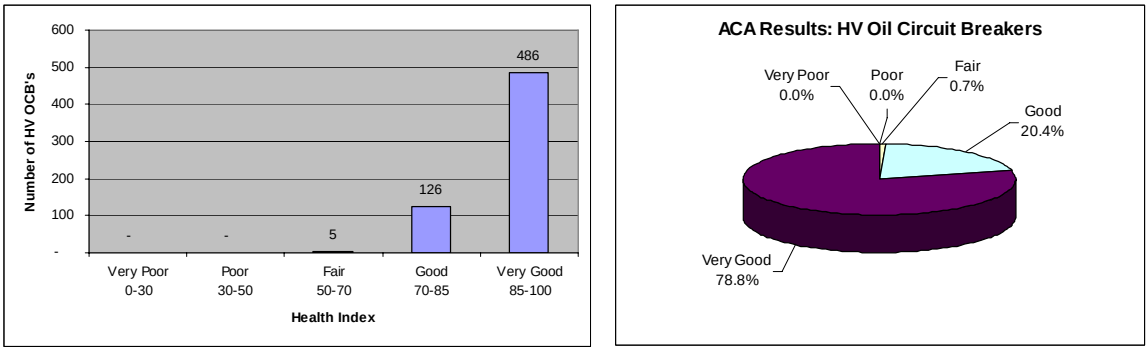


Figure 3.4 - Summary of Extrapolated Condition Assessment Results Transmission – HV Oil Circuit Breakers

99.2% of HV transmission OCBs and 97.3% of LV transmission OCBs are in "Good" or "Very Good" condition. There is a low risk of failure and no additional maintenance or capital improvements are expected in the near term. 0.7% of HV and 2.6% of LV OCBs are in "Fair" condition. There is a medium risk of failure and increased maintenance or capital improvements will be required in the next five years to prevent failure. Only two LV OCBs are in "Poor" condition. There is a high risk of failure and major refurbishment or replacement is required within the next five years to prevent imminent failure. There are no OCBs in "Very Poor" condition.

The Health Index provides an effective measure for comparing the condition of individual breakers. The ranking thus developed can provide a consistent means of utilizing condition information, in conjunction with strategic, economic and performance information, in the overall decision making process regarding EOL. As oil breakers are an obsolete technology, spare parts are becoming expensive. Newer technologies such as SF6 circuit breakers are more suitable for some repetitive switching applications such as for capacitor banks, resulting in significant savings in maintenance labour and interrupter parts as compared to oil circuit breakers. For these reasons OCB condition, combined with considerations such as cost and maintenance frequency, performance and customer needs, will contribute to an EOL strategy.

3.1.4 Transmission - Air Blast Circuit Breakers

Air Blast Circuit Breakers (ABCBs) are installed on the power system to interrupt load and fault currents and to de-energize power carrying assets to facilitate maintenance. ABCBs employ compressed air as an interrupting and insulating medium. They are complicated in design and incorporate a large number of moving parts, valves and seals. They also require a high-pressure compressed air supply consisting of a centralized high-pressure air compressor/dryer plant as well as an air storage facility.

There are 233 HV (at 115 kV or above) and 45 LV ABCBs installed on Networks' transmission system, mostly built between 1950 and 1982, as shown in Table 3.5.

		Voltage Class					
		<50kV	**115kV**	**230kV**	**500kV**	**Total**	**(%)**
Age Group	**0-10yrs**					**0**	0.00%
	10-20yrs					**0**	0.00%
	20-30yrs	1	1	12	26	**40**	14.40%
	30-40yrs	13	5	138	31	**187**	67.30%
	40-50yrs	22	0	16		**38**	13.70%
	>50yrs	9	4			**13**	4.70%
	Total	**45**	**10**	**166**	**57**	**278**	100.00%
	(%)	16.20%	3.60%	59.70%	20.50%	100.00%	

Table 3.5 - Air Blast Circuit Breaker Demographics

Based on the process review carried out by Hatch Acres, Networks has followed a path that is similar to other major electricity companies with respect to inspection and diagnostic testing as part of preventative maintenance activities. As a result, the

processes adopted by Networks are similar to those of other leading electricity companies and are conducted at approximately the same frequency. Overall, the Networks' maintenance based assessment activities are consistent with good practice and, in some cases are more rigorous than many other leading utilities.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for ABCBs based on the results of an asset condition survey and information gathered via regular maintenance activities on 16 condition parameters that measure ABCB degradation. This includes major condition parameters associated with the main ABCB functional components (i.e. air systems, bushings, electrical and mechanical systems) and ancillary systems that are generally accepted, in industry, to be significant measures for assessing the overall health/condition of ABCBs. Weightings were appropriately selected to ensure that the overall health/condition is driven by the condition of the main functional components, rather than the lesser ancillary systems or components.

Sufficient Health Index data was available to populate the Health Index for 131 ABCBs. An assessment of the condition of the entire HV ABCB population was developed by extrapolating the results for the partial set of data to the entire HV ABCB population of 233 breakers on a linear basis. The extrapolated results are shown in Figure 3.5 for High Voltage (HV) air blast breakers. Insufficient data prevented the calculation of a Health index for all but four of the LV ABCBs. An extrapolation of these results would not be reasonable because of the small sample size.

The condition assessment processes provide the basis for on going repairs and component replacement with an option to rebuild or replace if justified by a combination of defects and component conditions. Networks has identified degradation of gaskets, seals, and valves as the critical long-term issues. To deal with these in the past they have undertaken a major rebuild of each ABCB after approximately 20-25 years of service.

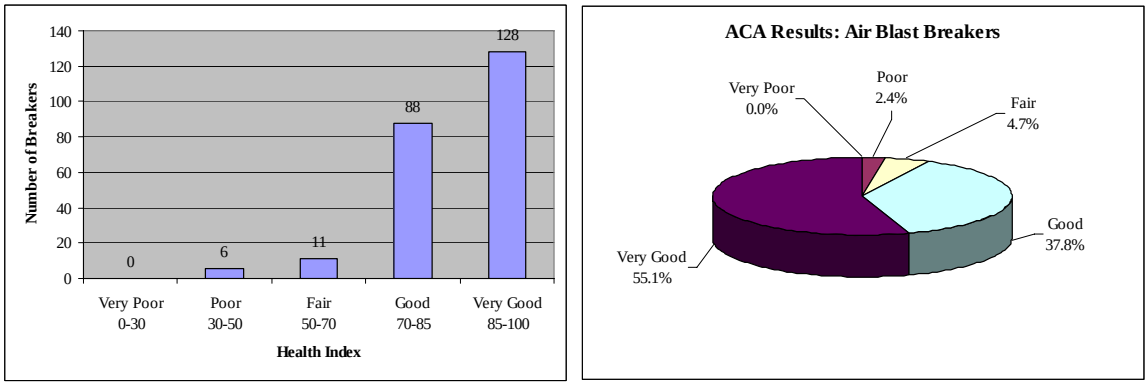


Figure 3.5 - Summary of Extrapolated Condition Assessment Results for HV ABCBs

92.9% of HV ABCBs are in "Good" or "Very Good" condition. There is a low risk of failure and no additional maintenance or capital improvements are expected in the near term. 4.7% of HV ABCBs are in "Fair" condition. There is a medium risk of failure and increased maintenance and capital improvements will be required in the next five years to prevent failure. 2.4% of HV ABCBs are in "Poor" condition. There is a high risk of failure and refurbishment or replacement is required within the next five years to prevent failure. One LV ABCB is in "Fair" condition and three LV ABCBs are in "Good" or "Very Good" condition. An extrapolation of these results across the LV ABCB population would not be reasonable because of the small sample size.

ABCBs are no longer manufactured, and, replacement parts, if they can be obtained are prohibitively expensive. Further refurbishment is not feasible. End of life for an ABCB may be defined as the point when the circuit breaker has degraded such that it is no longer performing reliably and safely and economically, and it cannot be economically restored to an adequate level of safety and reliability. The EOL strategy is therefore to run to the point where deterioration of gaskets and seals or unreliability of other components, such as control valves, is jeopardizing reliable operation. There is clear evidence of deteriorating ABCB performance over the last three years. Pro-active replacement of ABCBs will be undertaken before failure. Health Index condition assessment is not the only criteria used to determine replacement. The end-of-life decision is based on a multi-criteria assessment which includes condition and with due consideration to other factors such as age, performance, reliability, safety, failure consequences, spare parts availability, customer needs and life-cycle costs.

3.1.5 Transmission – High Voltage/ Low Voltage (HV/LV) Switches

This asset class consists of high voltage (HV) and low voltage (LV) disconnect switches used to physically and electrically isolate sections of the power transmission system for purposes of maintenance, safety, and other operational requirements. These switches are normally operated when there is no current through the switch, unless specifically designed to be capable of operating under load. Also included here are load interrupter switches which have load and limited fault interrupting capability and also grounding switches that are designed to apply a maintenance related safety ground connection.

HV switches include manually and motor operated switches operating at 500 kV, 230 kV and 115 kV while LV switches are those switches that operate at voltages between 13.8kV and 50 kV. There are a total of 5,662 HV switches and 6,529 LV switches on the transmission system and approximately 29% of these switches are over 40 years old, as shown in Table 3.6

		LV			HV				
		13.8 kV	27.6 kV	44 kV	115 kV	230 kV	500 kV	Totals	(%)
Age Group	0-10yrs	123	323	263	386	354	81	**1,530**	12.5%
	11-20yrs	108	676	313	175	276	110	**1,658**	13.6%
	21-30yrs	72	740	503	376	572	174	**2,437**	20.0%
	31-40yrs	93	948	536	632	767	83	**3,059**	25.1%
	41-50yrs	154	836	201	732	386	12	**2,320**	19.0%
	>50yrs	184	437	21	405	132	8	**1,187**	9.7%
	Total	**733**	**3,959**	**1,837**	**2,706**	**2,488**	**468**	**12,191**	100.0%
	(%)	6.0%	32.5%	15.1%	22.2%	20.4%	3.8%	100.0%	

Table 3.6 - HV/LV Switch Demographics

Based on the process review carried out by Hatch Acres, Networks has gone through the same thought processes as other major electricity companies with respect to the management of switches. The traditional preventative maintenance practices used by Networks are entirely consistent with standard practice elsewhere. The process of inspection and testing used by Networks contains many of the necessary elements for managing a large fleet of HV/LV switches, similar to other leading electricity companies. Therefore, Networks' maintenance-based assessment activities are consistent with good practice as carried out in many other leading utilities, with some opportunities for more on-site diagnostic testing using more routine thermographic surveys and periodic timing tests.

The process used by Networks to determine overall condition of HV/LV switches considers all the significant factors and relevant degradation processes associated with HV/LV disconnect switches and is judged to be effective. The use of the Health Index is a significant development that enables condition information to be used in a consistent manner in the end-of-life decision making process.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for HV/LV switches based on the results of an asset condition survey of ten condition parameters that are considered significant for measuring the overall health/condition of HV/LV switches. Weightings were appropriately selected to ensure that the overall health/condition is driven by the condition of the main functional components, rather than the lesser ancillary systems/components.

Health Indices were developed for approximately 78% of the total population of HV switches and approximately 79% of the LV switches. These results were extrapolated to the full population of 12191 switches. The extrapolated results are shown in Figure 3.6 and Figure 3.7.

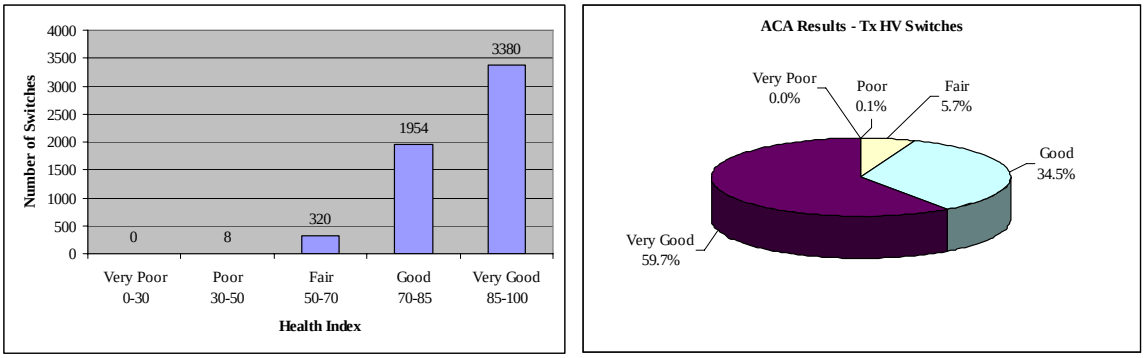


Figure 3.6 - Summary of Extrapolated Condition Assessment Results Transmission – HV Switches

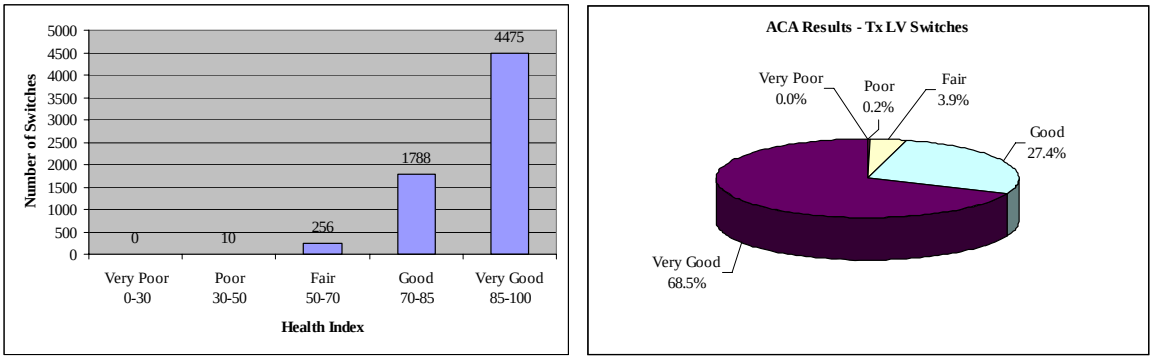


Figure 3.7 - Summary of Extrapolated Condition Assessment Results Transmission – LV Switches

Based on the above, less than 0.1% of the transmission – HV switches and 0.2% of the transmission – LV switches on the Networks' system are at significant risk of failure and will likely require replacement/refurbishment in the next 5-years to correct widespread significant deterioration. In addition, approximately 5.7% of the HV switches and 3.9% of the LV switches will likely require increased maintenance/ monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5-years and should be considered candidates for future refurbishment/replacement. The remaining 94.2% HV switches and 95.9 % LV switches are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

Health Index condition assessment is not the only criteria used to determine replacement. The end-of-life of decision is based on a multi-criteria assessment which includes condition and with due consideration to other factors such as age, performance, reliability, safety, failure consequences, spare parts availability, customer needs and life-cycle costs.

3.1.6 Transmission – Operating Spares

Operating Spares deals only with the condition of Networks existing fleet of operating spare equipment. It does not address the methods used for optimizing the number, type, strategy, or planning of specific spares required to provide the necessary transmission operating coverage.

This asset class consists of strategic operating spares that Networks maintains and considers essential for the safe, reliable and efficient operation of its transmission system. This asset class includes items such as spare power transformers, regulators, shunt reactors, grounding and station service transformers, and spare circuit breakers. The transmission equipment in this asset class operates at voltages of 13.8 kV to 500 kV.

The majority of these spare units are kept and maintained at the Central Maintenance Shops (CMS) in Pickering, Ontario. However, some units are stored at local transformer station sites where they remain as dedicated site specific spares.

The spare transmission system transformer groups are comprised of various voltage ratings, winding vector configuration, and overall capacities. These operating spare transformers at the CMS facility consist of 49 units and are carried as spares to back up the total population of transmission transformers. These spares provide operating replacements for the most widely used classes. In addition, there are 33 operating spare transformers located throughout the system but these will need refurbishment before they can be used.

About half of the operating spare circuit breakers held by Networks are direct replacements for the oil circuit breakers that are widely used throughout the system. There are currently 22 operating spare circuit breakers.

Networks maintain a database, which contains condition information on its spare transformer and spare circuit breakers. The data is based on regular physical inspections and tests and is used to formulate a Health Index. This Health Index formulation is based on the availability of the spare for use and not on proximity to End of Life (EOL). Categories are as follows:

Operating Spare – Level One (OS-L1) is a unit identified that is complete in all respects, will meet all expected system duty requirements, condition asset evaluation indicates only CR1's, CR2,'s, no parts missing, and is ready to leave the yard within 2 days. Generally speaking, the unit is in a state of readiness. This unit is reserved and maintained to replace a completely failed unit, minimum quantities of this class are reserved for this purpose, and shall not be considered as seed equipment for development projects, or refurbishment/replacement programs.

Operating Spare – Level Two (OS-L2) is a unit identified that is complete in most respects, will meet all expected system duty requirements, condition asset evaluation indicates only CR1's, CR2,'s, CR3's, some minor parts or components may be missing but easily replaced from pooled parts. The unit can generally be ready to leave the yard

with approximately 14 days of lead-time notice. This unit is reserved and maintained to replace a completely failed unit, minimum quantities of this class are reserved for this purpose, and shall not be considered as seed equipment for development projects, or refurbishment/replacement programs.

Operating Spare – Level Three (OS-L3) is a unit identified that is not complete in all respects, but is expected to meet all expected system duty requirements after refurbishment. The condition asset evaluation can indicate CR1's, CR2's, CR3's, or CR4's. Some minor and major parts or components may be missing but could be replaced during a planned retrofit or refurbishment. Generally speaking, the unit has value, but will not be ready for service until major remedial work is completed. This unit is reserved and maintained to replace a completely failed unit, minimum quantities of this class are reserved for this purpose, and shall not be considered as seed equipment for development projects, or refurbishment/replacement programs.

Networks' spares optimization models provide the basis for rationalizing the required quantities of their spares and implementing an effective spare management strategy that defines number, location and maintenance required to ensure adequate operating coverage is provided at all times. This approach delivers an overall spares management program that satisfies the requirements and compares well with "best practice" utilities.

Health Indices were developed for the total population of spare transmission circuit breakers and transformers. When extrapolated to the entire population of 104 units, 36.5% are at Level 3, 8.7% are at Level 2 and 51.0% are at Level 1. The individual results for large power transformers and regulators and circuit breakers are shown in Figure 3.8 and 3.9.

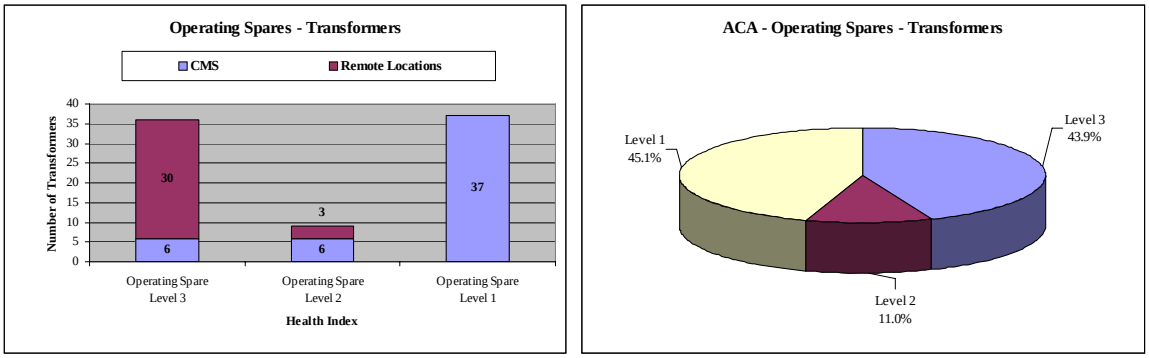


Figure 3.8 - Summary of Condition Assessment Results
Transmission – Spares: Power Transformers and Regulators

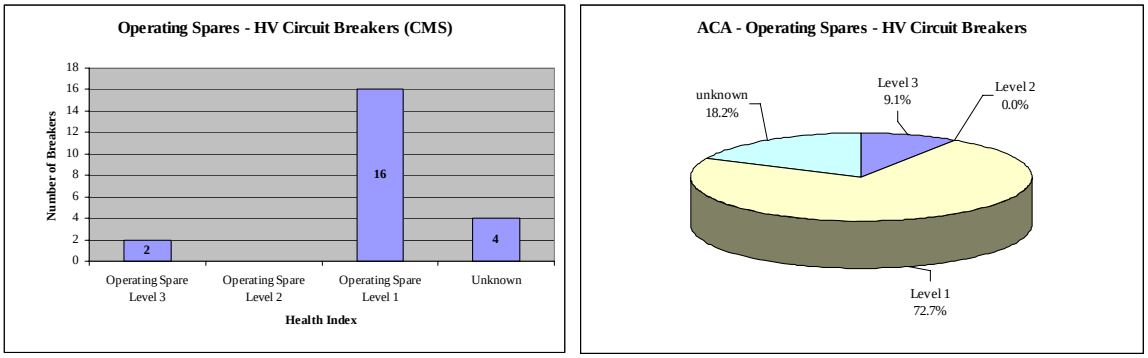


Figure 3.9 - Summary of Condition Assessment Results
Transmission – Spares: High Voltage Circuit Breakers

Based on the above, Networks has 46 large power transformers and regulators as Operating Spares - Level 1 or 2 in its inventory and 16 circuit breakers available at Operating Spares – Level 1. In addition two circuit breakers are in Level 3 condition and four circuit breakers are unclassified.

3.1.7 Transmission – Protection and Control (P & C)

Protection and Control (P&C) consists of protective relays and their associated systems. These devices are connected throughout the transmission system for the purpose of sensing and eliminating abnormal conditions. They detect and isolate, in conjunction with circuit breakers, any abnormal conditions resulting from natural events, physical accidents, equipment failure or mis-operation due to human error. P&C systems are therefore indispensable for the safe and reliable operation of the transmission system.

The maximum time allowed for power system protection to correctly sense and isolate faulted equipment is measured in fractions of a second. High-speed isolation is necessary to protect and mitigate damage to expensive system equipment, reduce the health and safety risks to public and personnel and to maintain power system security and reliability.

Both failure to operate and incorrect operation can result in major power system disruption involving increased equipment damage, increased personnel hazards and extended interruption of service. These stringent requirements with high potential consequences make it imperative that protection systems be extremely reliable.

As of 2003, Networks had a population of approximately 10,300 protection systems, as shown in Table 3.7. Approximately 35% of protection systems are more than 30 years old.

		Voltage Class					
		<50kV	**115kV**	**230kV**	**500kV**	**Total**	**(%)**
Age Group	**0-10yrs**	**1005**	**516**	**515**	**76**	**2112**	**21%**
	11-20yrs	**942**	**325**	**517**	**165**	**1949**	**19%**
	21-30yrs	**1347**	**885**	**1304**	**224**	**3760**	**37%**
	31-40yrs	**745**	**626**	**631**	**11**	**2013**	**20%**
	41-50yrs	**111**	**166**	**35**	**0**	**312**	**3%**
	>50yrs	**49**	**98**	**0**	**0**	**147**	**1%**
	Total	**4199**	**2616**	**3002**	**476**	10293	**100%**
	(%)	**41%**	**25%**	**29%**	**5%**	**100%**	

Table 3.7 - Protection Profile (2003)

Remote Terminal Units (RTUs) are located at all Networks' transformer stations to allow for operating control and monitoring from the Network Management System (NMS) located in Barrie. These facilities also provide information to the Independent Electrical System Operator (IESO).

The RTUs provide status indication, alarm and control of all equipment located at the local station. The RTUs transmits telemetry quantities such as Watts, VArs, Amps and Voltages used for indicating metering. The RTUs also perform certain control functions such as voltage regulation and breaker synchro-check depending on the station operating requirements.

The RTUs are either microprocessor or PC based and self-diagnosing. Microprocessor based RTUs may be single or dual-redundant depending on the reliability required in each installation. Dual redundant RTUs are also multi-ported to support communications to other electronic devices including Human-Machine Interfaces (HMI) used for local station control. Redundancy is provided in the processors only, since the input and output RTU architectures may be concentrated or distributed depending on the economies related to space constraints and cabling. The PC based installations will have a shorter life cycle and lower reliability than the microprocessor based devices as they have electromechanical data storage mechanisms and a relatively short obsolescence cycle. In some cases, RTU functions continue to perform as part of a distributed system, or are integrated as a secondary function into another P&C system.

The total count of 416 RTUs is comprised of various generations of electronic devices. Approximately 43% of these are more than 10 years old, as shown in Table 3.8. Since 2002 the population of RTUs greater than 15 years old has increased from 7% to 15%.

Remote Terminal Unit		Age	
		Total	(%)
Age Group	0 - 5 Years	20	5%
	6 - 10 Years	220	53%
	11 - 15 Years	115	28%
	> 15 Years	61	15%
	Total	**416**	100%

Table 3.8 – Control Systems Profile

Networks operates a conventional test and maintenance based management program for its P&C systems. However, it is recognized that inspection and testing is of limited value in determining degradation before failure. Therefore the main factors considered in determining appropriate replacement programs are based on non-condition issues including performance and obsolescence. For this reason it is not appropriate to derive a "condition only" based Health Index for these systems. Instead the most common approach to identify P&C systems for widespread replacement is the use of performance or mean time between failure (MTBF) information, as well as technological obsolescence information.

Testing and maintenance activities are based on a good understanding of the degradation processes and a full appreciation of the functional requirements of the P&C systems. Surveys to collate consistent and complete information on performance, capability and condition provide an excellent basis for determining future management and replacement policy and practice, and are the primary condition measures with an appropriate consideration given to physical condition issues.

It is clear from the documentation reviewed that Networks has gone through the same thought processes as other major electricity companies with respect to P&C condition assessment. Its documentation contains all the elements that would normally be found in other leading electricity companies. The existing activities include the same range of diagnostic tests. Networks has applied the rigorous maintenance practices to define the detailed maintenance requirements. Overall the Networks' maintenance based assessment and management program is consistent with good practice and, in some cases, is more rigorous than in many other leading utilities.

Based on Networks' historical performance trends and industry standard practices for assessing the condition of P&C systems, the condition of Networks' P&C systems is shown in Figure 3.10.

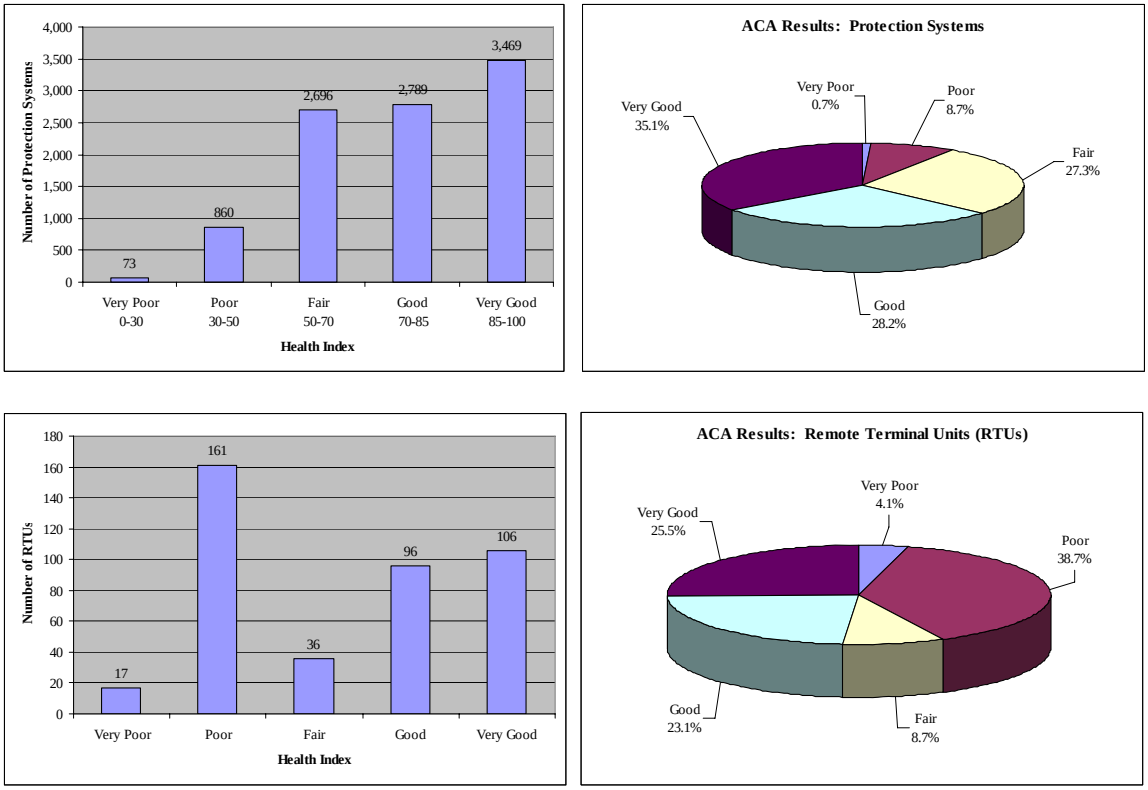


Figure 3.10 – Summary of Condition Assessment Results
Transmission – Protection & Control Systems

Based on the above, approximately 9.4% of the transmission protection systems and 42.8% of transmission RTUs are at high risk of failure and will require replacement over the next 5 years to prevent impact to customers and the power system. In addition, approximately 27.3% of the protection systems and 8.7% of the RTUs will likely require increased monitoring/maintenance to ensure that their performance does not deteriorate further over the next five years and should be considered candidates for future replacement. The remaining 63.3% of protection systems and 48.6% of RTUs are in "Good" or "Very Good" condition and it is expected that ongoing testing and maintenance activities will be adequate to maintain them in this condition during the next five year period.

3.1.8 Transmission – Phase Conductor

Networks has 27,723.6 circuit kilometres of transmission conductor on its transmission system operating at voltages from 115 kV to 500 kV. The majority of these phase conductors have been in service for more than 40 years, as is displayed in Table 3.9.

		Circuit length (Circuit-km)	(%)
Age Group	**0-10yrs**	2,133.7	7.7%
	11-20yrs	1,493.7	5.4%
	21-30yrs	3,233.9	11.7%
	31-40yrs	4,611.9	16.6%
	41-50yrs	4,487.9	16.2%
	>50yrs	11,762.5	42.4%
	Total	**27,723.6**	**100.0%**

Table 3.9 - Transmission Phase Conductors Demographics

The methods for determining the condition of the conductors is generally the same in Europe and North America, i.e. the tensile strength and ductility of the individual strands that make up the steel core and outer aluminium strands of the ACSR conductor are tested.

The "Health Index" is derived by analyzing the results obtained from testing samples of conductors taken from operating lines. The primary physical safety attribute for a conductor is its tensile strength to ensure it will remain intact during adverse weather conditions within the design rating. The secondary factors are the ductility properties of the conductor strands, which provide an indication of the conductor's ability to withstand wind-induced vibration and motion, along with the assessed surface condition of the conductor. The results are then modified by applied weightings, which will provide an overall rating of health for the conductors. The combined condition results (tensile, ductility and surface condition) are then broken into bands of condition such as "Good", "Fair", "Poor" and "Very Poor".

The number of conductor samples used to assess the overall population of phase conductors is 631. These conductor samples, with some exceptions, were all taken from transmission circuits older than 50 years. This represents approximately 42% of the total population of transmission phase conductors and virtually all phase conductors in service more than 50 years. This is a statistically relevant sample, and the results were extrapolated to the full population of 27,723.6 circuit kilometres as shown in Figure 3.11.

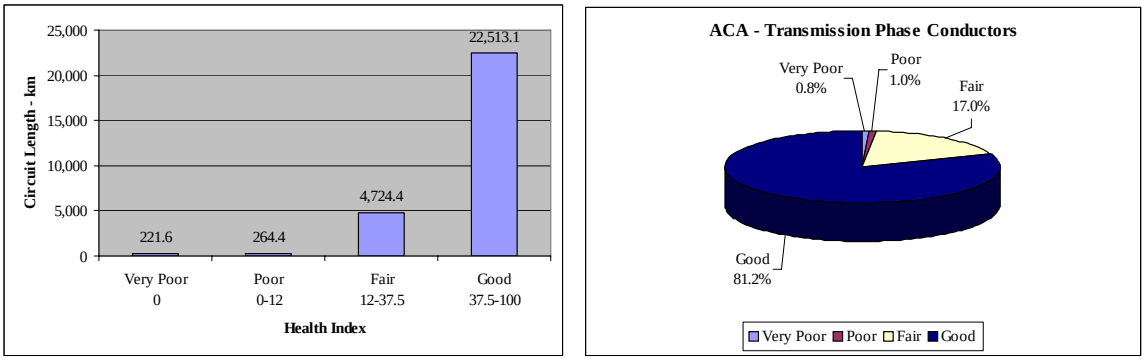


Figure 3.11 - Summary of Extrapolated Condition Assessment Results
Transmission – Phase Conductor

Refurbishment of the phase conductors has taken place (more than 1200 circuit-km) over several decades however; the majority has been performed in the late 1980's and through the 1990's. The most recent activity has been a couple of minor projects between 2002 and 2005 with a few more scheduled for 2007/8.

Based on the testing results from samples, approximately 0.8% of the transmission phase conductors on the Networks' system are at high risk ("Very Poor" condition) of failure and will require further testing in the next 1 to 2 years leading in most cases to replacement. Approximately 1.0% of total circuit length contains conductors in "Poor" condition, which will require additional testing within the next 5 years leading in some cases to replacement. The remaining 98.2% of the transmission phase conductors are in "Fair" to "Good" condition, and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.1.9 Transmission – Wood Pole Structures

Transmission lines are supported by a variety of structure types, and wood pole structures are a common form of support in Ontario.

Networks has 41,907 wood pole structures consisting of approximately 72,600 wood poles to support its transmission lines operating at 115 kV and 230 kV. The majority of transmission line wood structures are of the H-frame type, consisting of two or more poles placed in the ground about 4 to 7 metres apart with a cross-arm connected between them at a height needed to support the conductor a safe distance above ground.

The majority (86.2%) of these structures are used to support transmission lines operating at 115 kV. Approximately 65% of all the wood pole structures are more than 40 years old, as shown in Table 3.10.

		Voltage Level			
		115 kV	230 kV	Total	(%)
Age Group	**0-10yrs**	8,932	1,475	**10,407**	24.8%
	11-20yrs	4,462	857	**5,319**	12.7%
	21-30yrs	8,600	1,439	**10,039**	24.0%
	31-40yrs	2,602	513	**3,115**	7.4%
	41-50yrs	5,626	783	**6,409**	15.3%
	>50yrs	5,907	711	**6,618**	15.8%
	Total	**36,129**	**5,778**	**41,907**	100.0%
	(%)	86.2%	13.8%	100.0%	

Table 3.10 - Transmission Wood Pole Structure Demographics

Based on the process review undertaken by the Hatch Acres team, the testing techniques and decision processes used by Networks for their wood pole structures are technically sound and coherent, and they are consistent with utility practice around the world. Utilities in other jurisdictions use a variety of methods for determining the condition of wood poles, including the hammer test as a preliminary indicator to determine the need for additional test methods. The additional tests may include instrument measurement of the resistance to drilling into the wood, a graphed chart showing the measure of sound wood shell thickness, boring into the pole and measuring the sound shell thickness by inserting a measuring device in the bored hole, measuring the propagation of sound through the wood and other methods.

The data collection methods used by Networks have been proven over many years to produce a reliable indication of structure condition. The analytical methods used by Networks are consistent with those of the most forward-thinking companies in Europe and North America.

The Health Index is based on using several parameters such as the remaining strength of poles, woodpecker damage, pole condition and cross-arm condition.

The number of evaluated structures used to develop a Health Index was 31,301 out of a total population of 41,907. The Health Index developed from the poles tested was then extrapolated to the entire population as the structures tested were selected without any predetermined criteria for selection. The extrapolated results are shown in Figure 3.12.

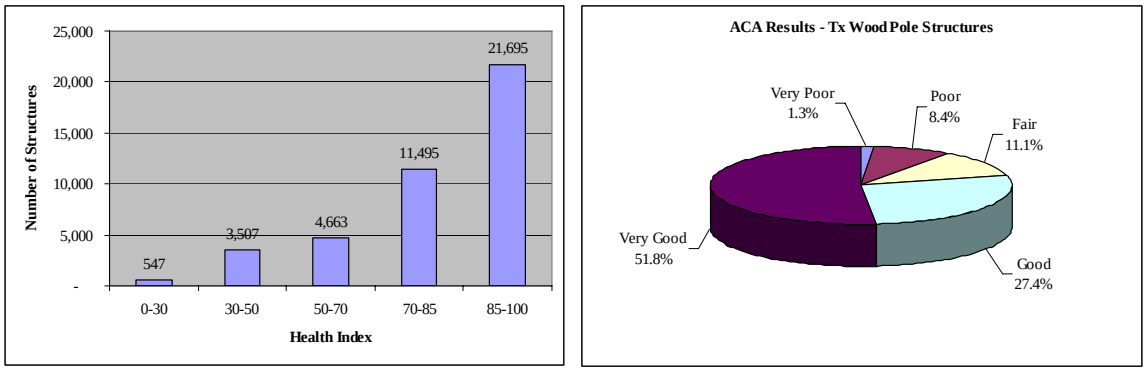


Figure 3.12 - Summary of Extrapolated Condition Assessment Results
Transmission – Wood Pole Structures

Based on the above, approximately 9.7% of the transmission wood pole structures on the Networks' system are at significant risk of failure and will likely require replacement/refurbishment over the next 5 years to correct widespread significant deterioration. In addition, approximately 11.1% will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement. The remaining 79.2% are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.1.10 Transmission - Underground Cable

Networks manages approximately 260 circuit kilometers (280 cable kms) of 115 kV and 230 kV high voltage cable systems that are primarily located in major urban cities of Toronto, Ottawa and Hamilton, with some minor systems in London, Windsor, Sarnia, Picton, and Thunder Bay. About 30% of these cables were installed prior to 1961 and are now more than 40 years old, as shown in Table 3.11.

Ages	HPLF		LPLF		Gas/XLPE		Totals		
In Service Yrs	# Ccts	Length Cct-km	# Ccts	Length Cct-km	# Ccts	Length Cct-km	# Ccts	Length Cct-km	%
0-10	8	10.7			1	1.3	9	12.0	4.6
11-20	13	39.7	10	6.2	1	0.5	24	46.4	17.8
21-30	18	54.5	4	3.8			22	58.3	22.4
31-40	16	48.1	8	18.9			24	67.0	25.7
41-50	7	14.3	23	46.3			30	60.6	23.2
>50	2	4.1	6	10.4	1	1.8	9	16.3	6.3
Total	**64**	**171.3**	**51**	**85.6**	**3**	**3.6**	**118**	**260.5**	**100**
(%)		65.8		32.8		1.4		100	

Table 3.11 - Transmission Underground Cable Age Demographics

The process used by Networks to determine the condition of the underground cables in its transmission system is based on a number of factors. These include: outer jacket

examination for defects, corrosion surveys, sampling & testing the insulating liquids, and examining the insulating tapes when joint replacements have offered the opportunity. This process is similar, if not identical, to all other operators of underground transmission cables in Europe and North America.

Hatch-Acres has used the results of Networks' assessment program, taking into account 14 critical factors, and the ratings assigned to those factors and have developed a suggested Health Index based on the conditions found. The use of the Health Index is a significant development that enables condition information to be used in a consistent manner in the end-of-life decision making process. This is particularly helpful in determining expenditure expectations in future years.

Health Indices were developed for 100% of the total population of underground cables and the results are shown in Figure 3.13. The HP Gas type cable was determined to be in "Fair" condition and the XLPE cables were determined to be in "Very Good" condition.

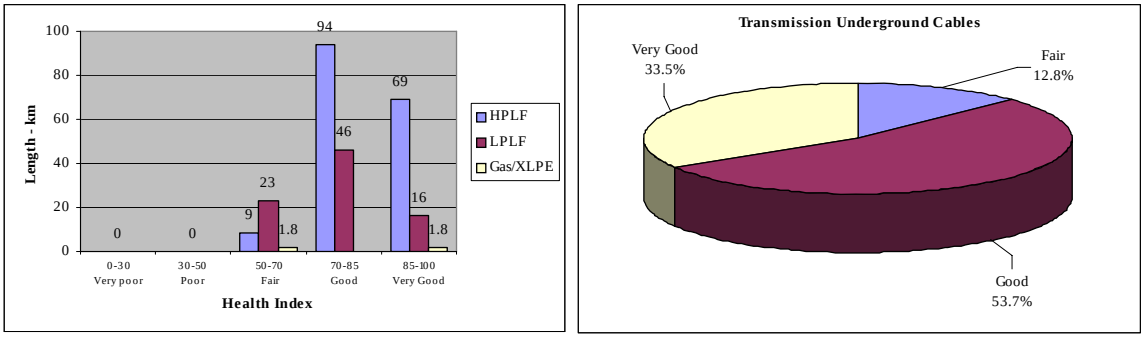


Figure 3.13 - Summary of Actual Condition Assessment Results

Based on the above, approximately 12.8% of the underground cables in Networks' transmission system will require an increased level of maintenance, refurbishment or replacement in the next 5 years. The level of maintenance for approximately 87.2% of the underground cables is adequate to maintain them in "Good" or "Very Good" operating condition in the next 5-year period.

3.1.11 Transmission – Rights-of-Way

Networks maintains approximately 82,000 hectares of transmission Rights-of-Way (Tx-ROW). These are corridors of lands that have the vegetation on them controlled to varying widths of the Tx-ROW depending on the nature and operating voltage of the towers occupying the Tx-ROW.

Approximately 40% of the Tx-ROWs are located in northern Ontario and contain 43% of the total line length of the Networks' transmission system. The remaining 60% of the Networks' Tx-ROWs are located in southern Ontario and contain the remaining 57% of transmission lines, as shown in Table 3.12. Southern Ontario consists of networks east and south crew zones, and spans Windsor in the west, Ottawa in the east and Muskoka in the north. Northern Ontario covers area further north and west to the Manitoba border.

		Geographic Areas of Ontario	
		Northern (km)	**Southern (km)**
Voltage Class	115 kV	5,205	3,257
	230 kV	2,913	6,373
	500 kV	700	2,112
	Total	**8,818**	**11,742**
	(%)	42.9%	57.1%

Table 3.12 - Transmission ROW Demographics

The tree caused outages on Networks' Tx-ROW are slightly higher than the best Scandinavian results and are in the same range as other large utilities operating in sparse forested areas. Thus, Networks' results indicate the Tx-ROW are being managed well, as Ontario is considered a relatively highly forested area. However, the methods of documenting the condition of the asset are in need of improvement, and such improvements have been initiated.

Integrated vegetation management (IVM) methods have been in use for about a decade and this method of using herbicides judiciously in conjunction with replacing trees and encouraging the growth of compatible species has resulted in reduced risks of tree caused outages and will result in long term cost minimization.

The proposed health index for Tx ROW utilizes seven of the standard condition indicators from the Networks condition surveys. Each of these condition ratings is assigned a suitable weighting factor, reflecting the importance of each condition factor in determining the need for action.

Health was estimated from schedules contained in approximately 300 brush clearing, line clearing and condition patrol projects for the treatment of Tx-ROW. The Health Index developed for each line segment was averaged for each ROW project. Combined, these projects represent the amount of work to be completed in order to maintain all Tx-ROWs. The Condition Assessment results are shown in Figure 3.14.

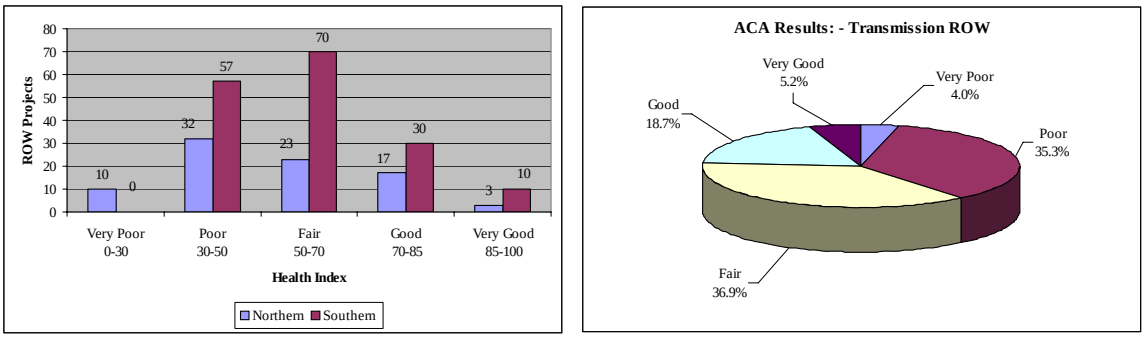


Figure 3.14 - Summary of Condition Assessment Results
Transmission – Rights of Way

Based on the above, only 4% of the Tx-ROW is in "Very Poor" condition, but when combined with the "Poor" condition Tx-ROW, this category totals about 39% which should be scheduled for remedial actions such as brush cutting, herbicide application, danger tree removals or Tx-ROW widening, some of it in the immediate future (1-2 years). Another approximate 37% was evaluated to be in "Fair" condition will require remedial action within the next five years. The remaining approximate 24% of Tx-ROW was evaluated as being in "Very Good" or "Good" condition and should continue to be maintained on a 6 to 8-year cycle to prevent vegetation growth from becoming a safety or performance issue in the long term.

3.2 P2 Assets

3.2.1 Transmission – High Pressure Air Systems

Centralized high-pressure air systems (HPA systems) are installed at all locations that have a population of air blast circuit breakers (ABCB). These breakers employ compressed air as an interrupting and insulating medium. This requires a high-pressure compressed air supply consisting of a centralized HPA compressor/dryer plant as well as an air storage facility. The HPA systems are usually comprised of multi-stage compressors, chemical or heated dryers, numerous air storage receivers, extensive piping and valving arrangements and controls.

Networks currently manages 25 HPA systems, including 91 compressors, 85 dryers, 529 air receivers, and 729 safety relief valves (RVs). Approximately 47% of the compressors, 37% of the dryers, 20% of the air receivers and 24% of the RVs are over 30 years old, as shown in Table 3.13.

		Compressor	(%)	Dryer	(%)	Air Receiver	(%)	RV	(%)
Age Group	0-10yrs	2	2.2%	18	21.2%	10	1.9%	36	4.9%
	11-20yrs	3	3.3%	2	2.4%	55	10.4%	107	14.7%
	21-30yrs	21	23.1%	14	16.5%	40	7.6%	76	10.4%
	31-40yrs	32	35.2%	21	24.7%	104	19.7%	123	16.9%
	41-50yrs	11	12.1%	11	12.9%	2	0.4%	52	7.1%
	>50yrs	0	0.0%	0	0.0%	0	0.0%	5	0.7%
	unknown	22	24.2%	19	22.4%	318	60.1%	330	45.3%
	Total	**91**	**100%**	**85**	**100%**	**529**	**100%**	**729**	**100%**

Table 3.13 – Transmission Station HPA Systems Demographics

Networks has well developed detailed maintenance procedures for HPA systems with separate sets of inspections and tests for compressors, dryers, air receivers, piping and condensate collection systems. In all cases, the inspections and tests carried out are classified using a condition rating system (CR1 to CR4) or a test pass, test fail criteria. In each case the appropriate remedial action is specified. The process of assigning condition ratings to each of the inspections and tests not only provides a very effective way of ensuring appropriate maintenance but also enables the information obtained from the maintenance program to be used to give an indication of overall condition.

The overall approach to inspection, testing, maintenance, assessment and management of the HPA systems demonstrates an appreciation of the issues and risks with these systems, based on both conventional thinking and knowledge gained from practical experience with the systems over many years. The information available to Networks should therefore enable appropriate decisions with respect to their future management, identification of systems that are economically not viable due to widespread deterioration, and effective interaction with the overall management decisions for the ABCBs.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for HPA systems based on the results of information gathered via regular maintenance activities.

Health Indices were developed for approximately 97% of the compressors, 81% of the dryers and pressure holding valves, 88.0% of the systems, pipes and valves, 24% of the air receivers, and then extrapolated to the full population. The extrapolated results are shown in Figures 3.15 through 3.18.

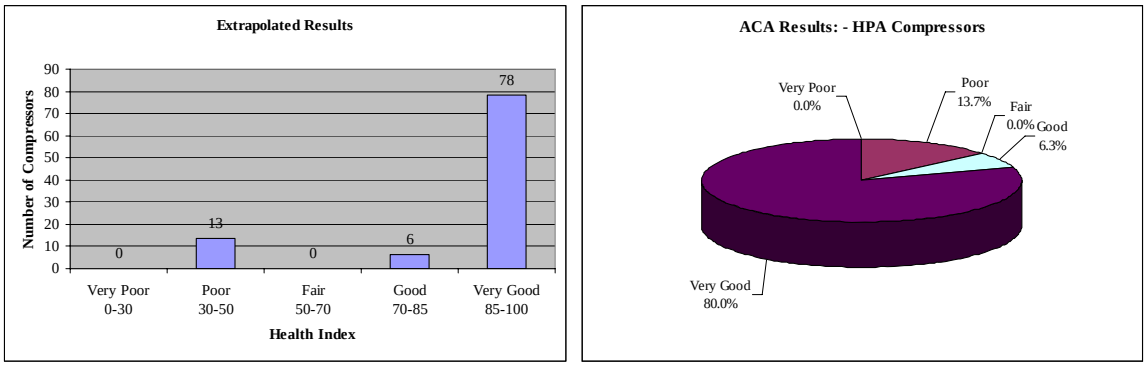


Figure 3.15 - Summary of Extrapolated Condition Assessment Results for HPA Compressors

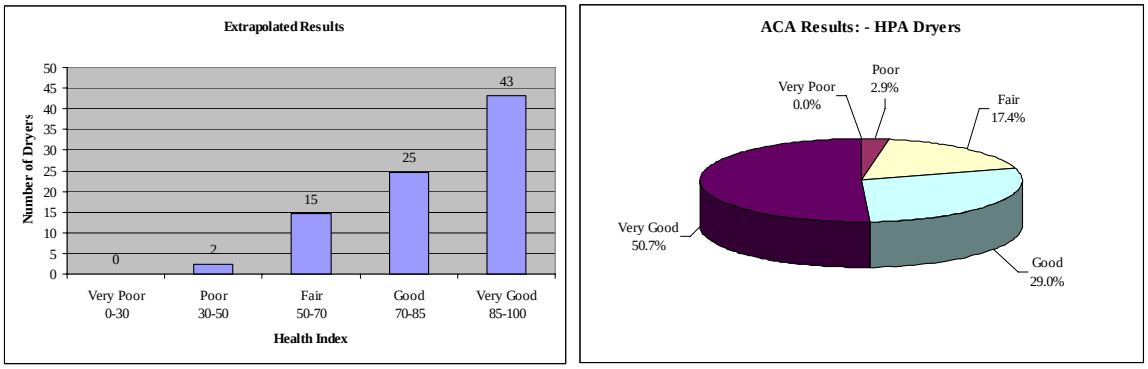


Figure 3.16 - Summary of Extrapolated Condition Assessment Results for HPA Dryers

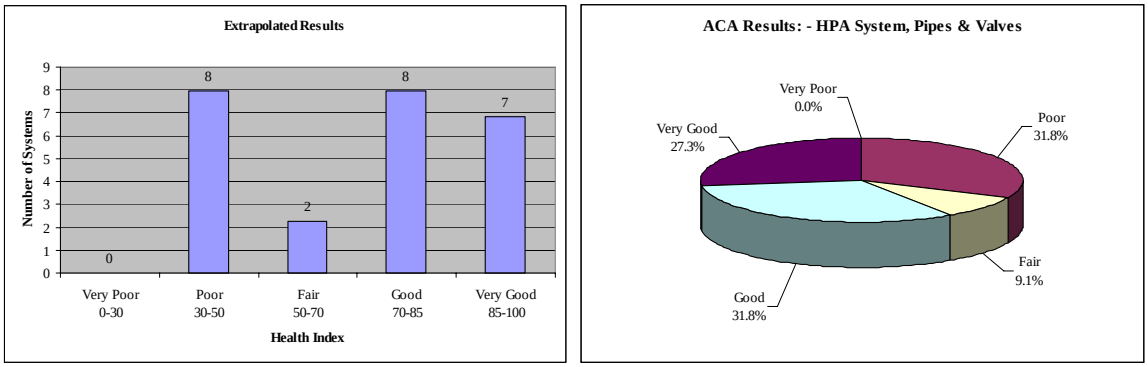


Figure 3.17 - Summary of Extrapolated Condition Assessment Results for HPA System and Pipes

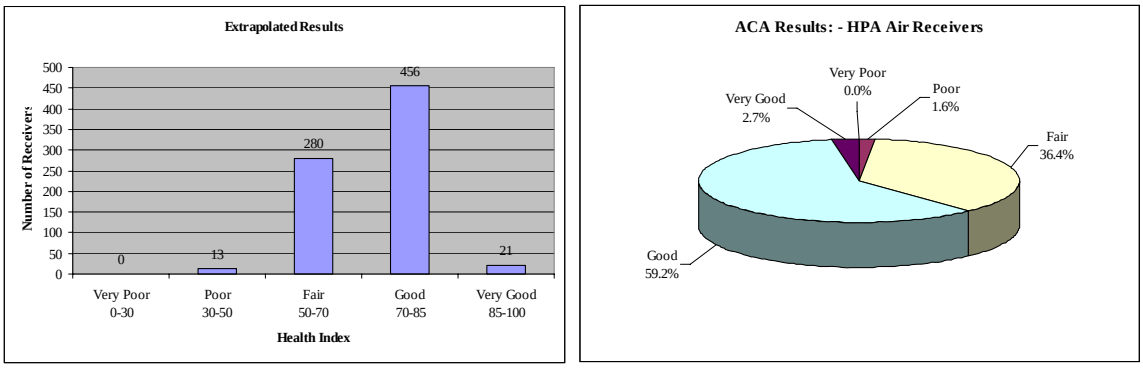


Figure 3.18 - Summary of Extrapolated Condition Assessment Results for HPA Receivers

Based on the above, approximately 14% of the compressors, 3% of the dryers and pressure holding valves, 2% of the air receivers and 32% of the systems, pipes and valves are at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure.

Furthermore, approximately 17% of the dryers and pressure holding valves, 9% of the systems, pipes and valves and 36% of the air receivers will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement.

The remaining 86.3% of the compressors, 79.7% of the dryers and pressure holding valves, 59.1% of the systems, pipes and valves and 62% of the air receivers are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

Due to the lack of sufficient data to link the requisite components at each site, only a generalized HPA Health Index can be provided. This is derived by using individual Health Indices for each major component. When each HI is individually categorized into the bands (very poor, poor, fair, good and very good) and then prorated in the proportions of the overall HPA HI (30:30:20:20) for compressors, dryers, system pipes and valves, and air receivers and relief valves, the result can be extrapolated to the overall population of 25 HPA systems. The extrapolated results are shown in Figure 3.19.

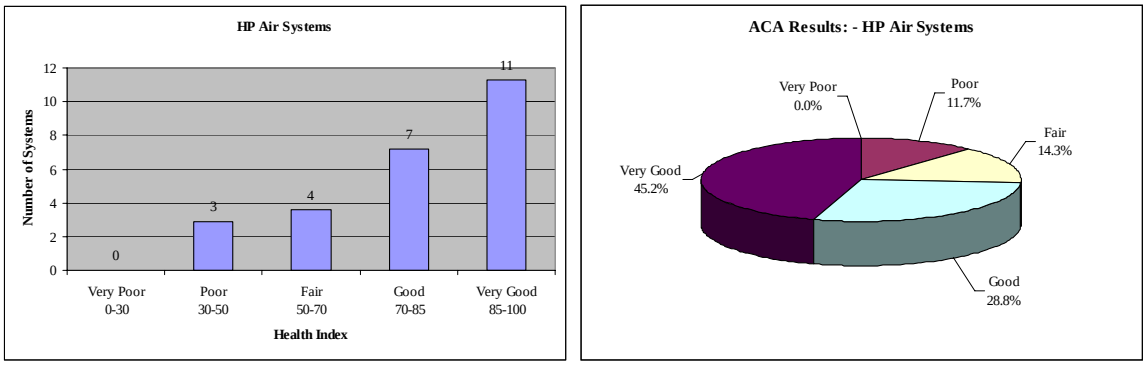


Figure 3.19 - Summary of Extrapolated Condition Assessment Results for Overall HP Air Systems

Based on the above, approximately 11.7% of the HP air systems are at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure.

Furthermore, approximately 14.3% of the HP air systems will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement.

The remaining 74% of the HP air systems are in “Good” or “Very Good” condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.2.2 Transmission – SF_6 Circuit Breakers

A circuit breaker is a mechanical switching device that is capable of making, carrying and interrupting electrical currents under normal and abnormal circuit conditions. Abnormal conditions occur during a short circuit such as a lightning strike or conductor contact to ground; or during switching of equipment in or out of service. During these conditions, very high electrical currents are generated that greatly exceed normal operating levels. A circuit breaker is used to break the electrical circuit and interrupt the current to minimize its effect on the rest of the system.

The first SF_6 circuit breaker was developed in the late 1960s and was a double-pressure design (low pressure tank and high pressure reservoir), based on the air blast technology. The double pressure design is very complex both electrically and mechanically and was quickly rendered obsolete by the single pressure design developed in the mid 1970s. The simpler, single pressure SF_6 insulated, circuit breaker has become the technology of choice for transmission class switchgear over the past 30 years. No compressor is required, since the gas for arc interruption is compressed in a puffer action by a piston during the opening operation. Recent improvements in the single pressure design, by the use of self blast or other related techniques to assist the interrupting process, has resulted in still simpler and more reliable spring charged or hydraulic-spring operating mechanisms.

Early SF_6 designs experienced many problems and failures. The Networks transmission system still contains about 35 breakers of these early designs. These include ITE double-pressure and Westinghouse single pressure breakers. SF_6 is a very stable compound with remarkable dielectric properties. Its use has enabled transmission equipment to become more compact, safer and have fewer maintenance requirements. Recent SF_6 designs have improved the technology substantially. Because of these improvements, SF_6 equipment has become popular and has replaced all other high voltage technologies and, over the last 30 years, single pressure SF_6 breakers have become the technology of choice for transmission class switchgear.

Networks has 1012 SF_6 Circuit Breakers (CBs) in its transmission stations operating at voltages up to 500 kV. Approximately 69% of these are providing service at voltages below 50 kV, 11% at 115 kV, 18% at 230 kV and the remaining 3% at 500 kV. The majority of these SF_6 CBs (96%) are less than 20 years old and about 5% are more than 20 years old as shown in Table 3.14.

		Voltage Class					
		<50 kV	**115 kV**	**230 kV**	**500 kV**	**Total**	**(%)**
Age Group	0-10yrs	169	48	109	7	**333**	**32.9%**
	11-20yrs	510	41	56	17	**624**	**61.7%**
	21-30yrs	13	20	18	3	**54**	**5.3%**
	31-40yrs	1	0	0	0	**1**	**0.1%**
	Total	**693**	**109**	**183**	**27**	**1,012**	**100.0%**
	(%)	**68.5%**	**10.8%**	**18.1%**	**2.7%**	**100.0%**	

Table 3.14 - SF_6 Circuit Breaker Demographics

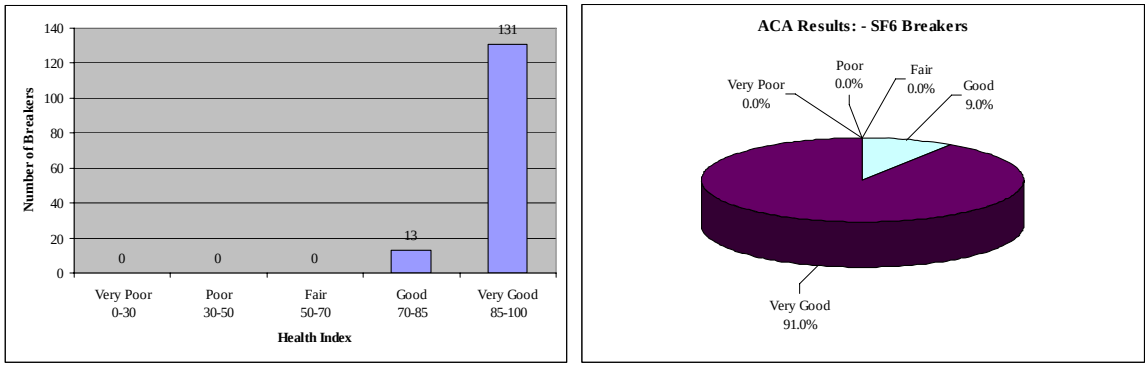


Figure 3.20 Summary of Actual Condition Assessment Results for SF_6 Circuit Breakers

Maintenance and management processes applied by Networks to SF_6 CBs are essentially the same as other leading utilities. In general, they include a range of visual inspection and functional tests and some SF_6 gas testing. They are all based on manufacturers' recommendations for maintenance, which require minimal invasive activity. Networks installed SF_6 CBs during the early stages of the technology development and have suffered a higher number of early life problems. Networks has a good understanding of the issues that affect particular types of CBs on its system and are able to manage these appropriately. Networks and several other utilities have identified long-term degradation of a few of the earlier designs of SF_6 breakers that warranted consideration of end-of-life or replacement. Some of these are still on the system, but they only represent about 3.5% of the total population. Breakers that cannot be economically restored to an adequate level of safety and reliability are being replaced with more cost effective, modern SF_6 circuit breakers.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for SF_6 CBs based on the results of information gathered via regular maintenance activities on 17 condition parameters that measure SF_6 CB degradation. This includes major condition parameters associated with the main SF_6 CB functional components (i.e. SF_6 gas systems, bushings, electrical and mechanical systems) and ancillary systems that are generally accepted to be significant measures for assessing the overall condition of CBs. Weightings were selected to ensure that the overall condition is driven by the condition of the main functional components, rather than the less important ancillary systems/components.

However, most of the data required for assessing the condition of SF_6 CBs is being collected over a 15-20 year cycle via maintenance activities. This is the most cost effective and practical method for collecting asset condition information on SF_6 CBs, because extensive equipment outages are required to carry out intrusive, diagnostic condition tests and assessments. Since the recent preventative maintenance activities have only been implemented over the last 6 years on SF_6 CBs, it will be another 9 years before all the required condition information is collected.

Due to the lack of sufficient data on SF_6 CBs, a condition based Health Index could only be computed on 144 breakers. These breakers were in "Very Good" or "Good" condition. The amount of valid data collected is too small to represent a statistically significant sample of the total population and the results cannot be extrapolated to the full population with any degree of accuracy. In addition, it does not capture the condition of approximately 35 very poor performing, early design breakers, still on the system. Ten of these very poor performing breakers have reached or surpassed their mechanical design life of 2000 switching operations.

Although the condition assessment process used by Networks has been judged to be sound and forward thinking, and since not much is needed to assemble a more statistically significant data set, an attempt should be made to accelerate the collection of SF_6 CB condition data. Currently, Networks is planning selective maintenance for 2007, which should accomplish this.

3.2.3 Transmission – Metalclad Switchgear

In a typical low voltage switchyard the switchgear is assembled with sufficient clearance between live parts and ground so that the ambient air provides insulation between phase conductors. However, if the live parts can be coated with a suitable insulating material, the required clearances can be reduced, and the switchgear assembly can be made much more compact. Switchgear that is thus insulated and then has its major components enclosed in separate grounded metal compartments is called metalclad switchgear. Metalclad switchgear for indoor application is extensively used by Hydro One to supply power to local utilities in urban areas.

Networks currently manages 81 metalclad switchgear assemblies containing 674 metalclad circuit breakers, 81 busses and 287 switches. Approximately 91% of the breakers are used at the 13.8 kV voltage level, as shown in Table 3.15. It can also be seen that about 23% of the breakers and their related assemblies are over 30 years old.

		Voltage Class			
MetalClad Breaker		13 kV	27 kV	Total	(%)
Age Group	0-10yrs	23	21	44	6.5%
	11-20yrs	207	30	237	35.2%
	21-30yrs	159	9	168	24.9%
	31-40yrs	143	0	143	21.2%
	41-50yrs	10	0	10	1.5%
	> 50yrs	2	0	2	0.3%
	Unknown	69	1	70	10.4%
	Total	613	61	674	100.0%
	(%)	90.9%	9.1%	100.0%	

Table 3.15 – Transmission Station Metalclad Breakers Demographics

MetalClad Bus		Voltage Class				
		13 kV	27 kV	Unknown	Total	(%)
Age Group	0-10yrs	4	0		4	4.9%
	11-20yrs	14	0		14	17.3%
	21-30yrs	13	4	1	18	22.2%
	31-40yrs	36	0		36	44.4%
	41-50yrs	2	0		2	2.5%
	> 50yrs	5	2		7	8.6%
	Total	74	6	1	81	100.0%
	(%)	91.4%	7.4%	1.2%	100.0%	

Table 3.16 – Transmission Station Metalclad Bus Demographics

Networks has developed detailed, well-documented maintenance procedures for metalclad switchgear. These consist of separate documents for air, oil, SF_6 and vacuum circuit breakers and bus sections and switches. They consist of task groups under the headings visual inspection, maintenance, diagnostic testing, and selective intrusive inspection/maintenance. Within each of these task groups there is a selection of different inspections and tests to be carried out, each with defined condition ratings of 1 to 4 or test-pass/test-fail (TP/TF) to enable a structured approach to deal with observed or measured defects.

Networks' practices are based on the traditional time based maintenance approach used by most other leading utilities. The information collected during maintenance also provides the basis for an effective means of quantifying long term condition via a Health Index. This enables Networks to use condition information to rank switchgear by risk of failure and to incorporate other factors/risks in determining the highest risk switchgear units for end-of-life replacement.

Sufficient condition data was available to calculate health indices for 41.2% of the circuit breakers, 25% percent of metalclad buses and 54.7% of switches. Due to the lack of sufficient data to link the requisite components at each metalclad site, only a generalized metalclad Health Index can be provided. This is derived by using individual Health Indices for circuit breakers, buses and switches. When each HI is individually categorized into the bands (very poor, poor, fair, good and very good) and then prorated in the proportions of the overall metalclad HI (70:20:10 for breakers, buses and switches) the result can be extrapolated to the overall population of 81 metalclad switchgear assemblies

The extrapolated results are shown in Figure 3.21.

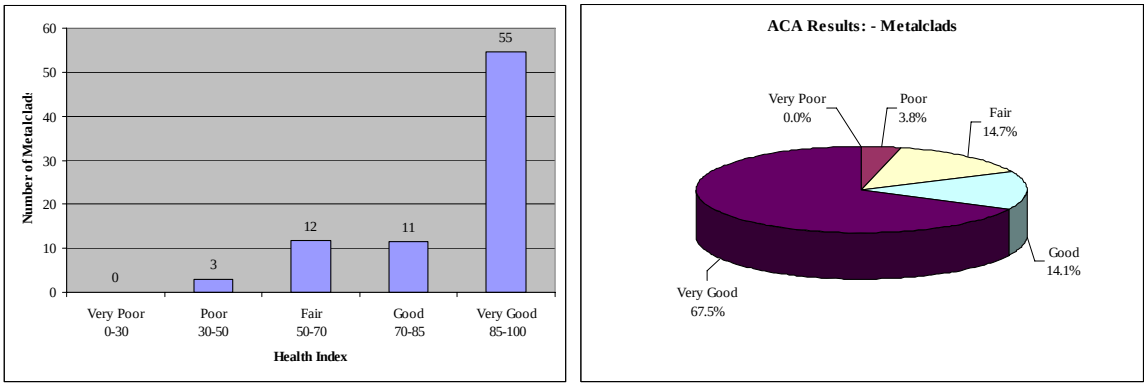


Figure 3.21 - Summary of Extrapolated Condition Assessment Results for Metalclad Switchgear Assemblies

Based on the above, 3.8% of the metalclads are in "Poor" condition and will require refurbishment or replacement within the next 5 years. In addition, 14.7% of the metalclads are in "Fair" condition and will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement. Approximately 81.6% of the metalclads are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

End-of-life strategies have been traditionally based on capability and obsolescence rather than condition. However, many utilities have programs to replace older air blast or air magnetic equipment with SF_6 or vacuum. Prioritization is usually driven by specific problems associated with individual types of equipment. These sometimes relate to condition, but more often relate to obsolescence issues, rating limitations or design shortcomings.

3.2.4 Transmission – Power Line Carrier

Power Line Carrier (PLC) communications is the practice of transmitting information using the electrical power line as the communication media. This information is transmitted in the form of modulated radio signals over 115 kV, 230 kV and 500 kV transmission lines. PLC has proven to be a highly reliable and robust communication system. While offering limited signal transmission capacity, PLC is a cost effective communication solution for remote areas where other communication media are not available or applications where greater bandwidth is not required. For these reasons, Hydro One Networks Inc. (Networks) continues to operate and maintain PLC facilities.

A PLC "system" consists of terminal equipment (transmitter, receiver, tone equipment and ancillary equipment) at each end of the power line that is being protected, and coupling equipment (line traps, couplers, co-axial cables and hybrid equipment) that connects the terminal units to the power line. Separation of the PLC signal from the electric power being transmitted is achieved by transmitting the PLC signal within a

frequency range of 30 kHz to 300 kHz while electrical power is transmitted over the same line at 60 Hz.

Networks' maintains 79 PLC systems comprising approximately 2,600 indoor and outdoor components. Approximately 60 % of the equipment was installed over 30 years ago, and more than 75% of the critical indoor components, such as transmitters, receivers and tone equipment, have been replaced during this period. The age profile of Network's PLC equipment is shown in Figure 3.22.

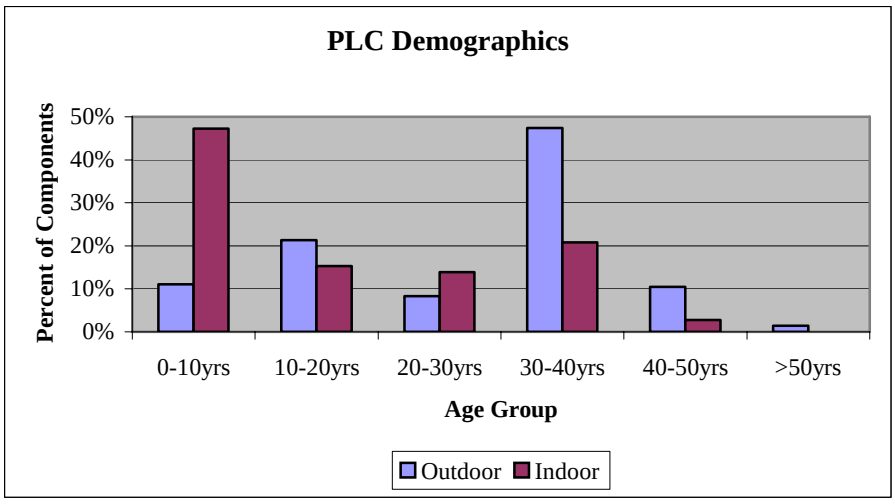


Figure 3.22 Power Line Carrier Demographics

Determining when PLC is approaching, or has reached end-of-life, requires intrusive detailed testing and assessment, reviewing the condition of the various components and analyzing it against its intended functionality. While it is generally accepted that there is some correlation between the condition of PLC components and their age, it is important to recognize that age is merely one criterion utilized in the assessment process for end-of-life. Overall condition of the PLC System is assessed by considering the following:

- Physical condition,
- Functional requirements and Performance,
- Need for periodic adjustments and/or calibration,
- Frequency of emergency/preventative maintenance,
- Spare parts availability.

Based on the process review carried out by the Hatch Acres team, the asset condition assessment process employed by Networks for PLC is a viable and effective process. The role and significance of physical condition information for PLC is acknowledged to be less than for most other asset types. The process enables condition information to be applied in a consistent and appropriate manner within an overall management program. Networks' approach to PLC asset management is similar to other major electricity companies. The maintenance program is based on a combination of functional tests and visual inspections, and the replacement of components or assemblies are consistent with

practices in other leading utilities. The end-of-life criteria are predominantly based on performance and obsolescence factors. This is also similar to those used by other utilities.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for PLC systems based on the results of a 2002 asset condition assessment survey. The six condition criteria used are considered to be reasonable parameters for assessing the condition of PLC system components. These six criteria combine visual assessments for moisture ingress, corrosion and mechanical deterioration, and were combined using appropriate weighting factors to yield an overall asset health index.

The initial Condition Based Health Indices (CBHIs) developed for approximately 97% of the total population of PLC indoor and outdoor components were extrapolated to the full population on a linear basis. The extrapolated results are shown in Figure 3.23:

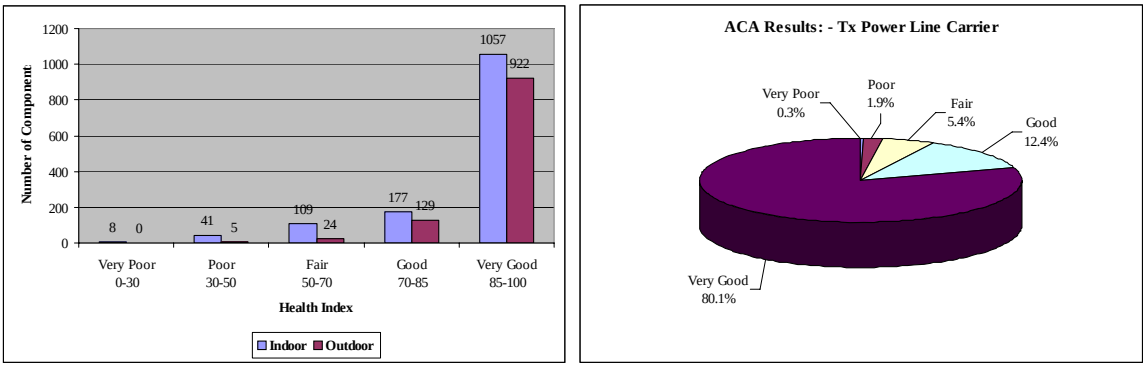


Figure 3.23 - Summary of Extrapolated Asset Condition Assessment Results Transmission - Power Line Carrier

Based on the above results, approximately 2.2% of PLC system components on Networks' transmission system are at significant risk ("Poor" to "Very Poor" condition) and will likely require replacement/refurbishment to correct widespread significant deterioration of components in the next 5 years. In addition, approximately 5.4% will likely require increased maintenance/ monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future replacement/refurbishment. The remaining 92.5% of PLC system components is in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

However, since in addition to condition, PLC systems are replaced on the basis of functionality, performance, obsolescence and unavailability of spare parts which impacts restoration time, replacement of PLC equipment will be required well before the equipment physically deteriorates. Further to this many systems have been replaced since 2002 and their physical condition will now be "Very Good". Based on this, the previous "physical" PLC Health Index results are adequate for decision-making in 2006.

Given that end-of-life decisions are predominantly based on performance and obsolescence factors, an enhanced health index formulation that incorporates functional performance, residual life, non-discretionary and discretionary obsolescence has been proposed for application in the future.

3.2.5 Transmission – High Voltage Instrument Transformers

The application of control, protection (relaying) and metering functions to high voltage (HV) systems requires the use of sensitive measuring devices, which are typically incapable of withstanding the high currents and high voltages present on the Hydro One Networks Inc. (Networks) primary system. For this reason, the primary voltages and currents in typical HV systems must be accurately transformed to lower values that are acceptable to the measuring devices.

In HV systems special transformers called instrument transformers carry out this function. There are two basic types of instrument transformers: voltage (potential) transformers (PTs) and current transformers (CTs). Traditionally, these transformers have been oil insulated. Other types of current transformers are now being supplied that use SF6 as the insulating medium.

Networks currently manages 5,289 High Voltage Instrument Transformers (HVITs). Approximately 60% of the total HVITs are used at 230 kV level, as shown in Table 3.17. In addition, about 38% of the total population is greater than 30 years old and approximately 4.7% are more than 40 years old.

		Voltage Class					
		69kV	**115kV**	**230kV**	**500kV**	**Total**	**(%)**
Age Group	0-10yrs		353	502	36	**891**	16.8%
	10-20yrs		522	597	152	**1271**	24.0%
	20-30yrs		110	366	90	**566**	10.7%
	30-40yrs		161	1403	205	**1769**	33.4%
	>40yrs	1	167	78		**246**	4.7%
	unknown		251	242	53	**546**	10.3%
	Total	**1**	**1564**	**3188**	**536**	**5289**	100.0%
	(%)	0.0%	29.6%	60.3%	10.1%	100.0%	

Table 3.17 – Transmission Station HVIT Demographics

Networks has well developed inspection and testing practices for HVITs. These are consistent with general degradation and failure modes and, where appropriate, with the specific issues that relate to individual types on their system. The inspection and maintenance practices and procedures used result in very effective use of the information, which, when supplemented with an ACA survey, enables the overall condition of HVITs to be assessed.

Using a multi-criteria decision analysis approach, a Condition Based Health Index (CBHI) was derived for HVITs based on the results of information obtained through recent inspections and ACA survey.

Health Indices were developed for all the 5,289 HVITs. Approximately 68% of the HVITs had sufficient data for developing the overall CBHI. The results are shown in Figure 3.24.

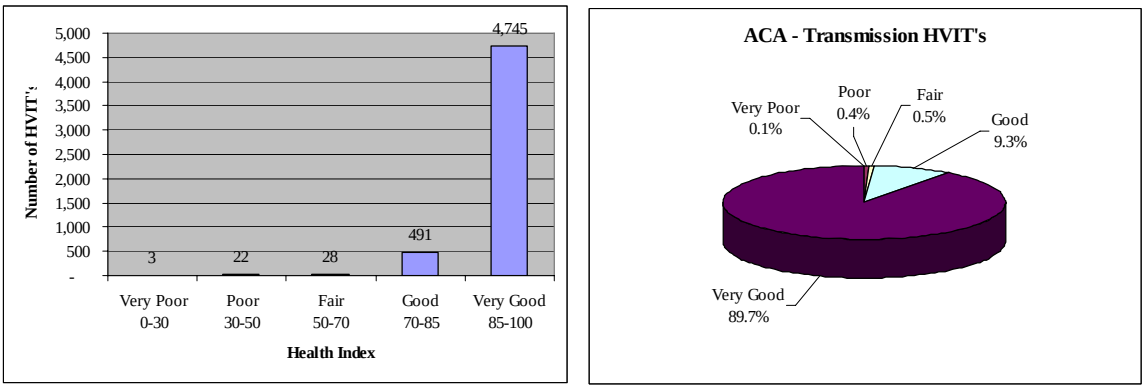


Figure 3.24 - Summary of Condition Assessment Results for HVITs, Overall

Based on the above, approximately 0.1% of the HVITs are at a very high risk of failure and replacement is required as soon as possible. In addition, approximately 0.4% of the HVITs are at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure. Furthermore, approximately 0.5% of the HVITs will likely require increased maintenance over the next 5 years to ensure that their condition does not deteriorate further. The remaining 99.0% of the HVITs are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.2.6 Transmission – Revenue Metering

Networks delivers electrical energy through its transmission system to Market Participants (MP) such as local distribution companies and large industrial customers. Energy is injected into the Networks transmission system from Network connected and embedded generators located within the province and from other utilities outside of the province through Network connected inter-ties.

Market rules require that every interface with a MP requires revenue metering installations to record the energy and demand transaction amount. For the purposes of billing, these transactions are settled on the high voltage (>50 kV) side of a Network transformer know as the Delivery Point (DP). However, to minimize cost, metering installations are typically located on the low (<50 kV) voltage side of the Network transformer at the point of connection or interface between Networks' system and customer/market participant's facilities (normally where the connecting power line exits Networks' transmission station or where it enters the MPs substation). Metering

installation measurements are then adjusted to account for the losses of the Network transformer.

A metering installation is comprised of one multi-channel recorder connecting one or more meters and associated voltage and current transformers for each meter point. Each MP connecting to a TS would have one or more metering installations.

At the start of the market in 2002, Networks owned 1188 metering installations registered to the IESO market. About one third or 327 metering installations are assigned to Networks distribution. In accordance with the market rules under the transitional arrangements, Networks is required to provide metering services to these legacy metering installations until the earliest expiry date of any seal period of any meter forming part of such metering installation at which time the MP for the metering installation shall exit from the transitional arrangement and make such alternative arrangements as may be necessary to comply with the chapter 6 of the market rules. Networks is registered with the IESO as a Meter Service Provider (MSP) to provide the required meter services for metering installations under the transitional arrangement and to offer and provide competitive meter services when requested by MPs.

Prior to market start, OPGI installed their own market rule compliant metering installations at all their Network connection and embedded supply points. None of these assets are owned by Networks, however, Networks has a competitive MSP contract with OPGI to maintain their metering installations.

As of the end of 2005, the earliest seal expiry date of 869 metering installations has been reached, however, MPs, including Networks distribution, have made alternative arrangements for only 762 meter installations. Networks continues the transitional arrangement for the remaining 107 metering installations. This is because a meter services charge is embedded in the transmission network tariff and Networks remains the MSP on record with the IESO.

		< 10 MW	**>= 10 MW**	**Total**	**(%)**
Seal Expiry	2003	186	176	**362**	30.5
	2004	166	147	**313**	26.3
	2005	137	57	**194**	16.3
	2006	97	46	**143**	12.0
	2007	86	37	**123**	10.4
	2008	40	13	**53**	4.5
	Total	**712**	**476**	**1,188**	100.0
	(%)	59.9	40.1	100.0	

Table 3.18 – Revenue Metering Installations

Networks policy provides the MP with four options to exit the transitional arrangement. The MP either:

1. Abandons the metering installation or,
2. Purchases (conveyance) the meter installation if not inside a Networks' TS or,
3. Upgrades the meters only and uses the Network owned legacy instrument transformers (IT) inside a Networks' TS or,
4. De-registers from the wholesale market and settles with the host utility.

Of the 762 metering installations, 548 are associated with external MPs. Of these that have exited the transitional arrangement, 15% have abandoned, 45% have purchased the metering installation, 30% have decided to use Networks legacy Instrument Transformers (IT) and 10% have decided to deregister from the wholesale market. In most cases those that de-register become retail customers of Networks distribution.

Experience has shown that embedded MPs not directly connected to the Network whose metering installation is not located inside a TS will usually purchase the metering installation. The metering installations associated with MPs directly connected to the Network are usually located inside TSs. In these cases the MPs will either abandon the metering installation completely and install their own, or will install conforming meters and use Networks' ITs. In the latter case, Networks is obligated to maintain the ITs until the MP makes alternative arrangements, or the ITs fail or reach end of life.

Over 10,000 legacy instrument transformers were registered into the IESO market at market start. Over two thirds of these are certified by Measurement Canada. The remaining one third either has no certification or not enough information about the IT is available to determine if they are certified. For these ITs, Networks has been granted temporary permission from Measurement Canada to continue to use these ITs for metering. Unfortunately, the temporary permission will expire beginning in 2006.

3.2.7 Transmission – Station Insulators

Insulators are used in transmission stations for termination of conductors at structures and to support busses or equipment. The types of insulators used in transmission stations are:

- Disc types for strain bus connections and for idler strings associated with strain buses
- Rigid support insulators mostly used for rigid bus support.

Insulators essentially isolate live apparatus from station structures and provide support for electrical conductors and equipment. Station insulators are subject to both electrical and mechanical stresses at the installation point. The electrical stresses are caused by the high voltage between live parts and ground during normal and abnormal conditions. Mechanical stresses include compression, torsion, tension and cantilever forces.

Porcelain insulators were applied at all voltage levels for both strain and rigid conductor support until the early 1990's and are still used for the majority of high voltage (HV, >50kV) applications. Within the past ten years, polymeric insulators have been

applied for almost all strain and rigid bus support installations at low voltage (LV, < 50kV) and also for some HV strain bus support applications in heavily contaminated locations.

Insulator condition assessment is very difficult to carry out because the porcelain material, which many are made from, is very brittle. This normally results in sudden failures without any warning or evidence of distress or degradation before the failure. The most significant time related processes that cause failure are cement growth, moisture ingress and internal corrosion. These processes are generally not visible externally and not detectable non-destructively. Most inspection and testing procedures applied to porcelain insulators are designed to detect cracked porcelains and to report external damage due to deterioration.

Networks recognizes that the failure of insulators are a significant issue and, as such, undertakes regular visual examination and thermographic testing to identify external and other damage to insulators. Networks' approach to the management of insulators is very similar to other leading utilities, relying primarily on non-invasive visual inspection and thermographic testing to identify high risk insulators and candidates for replacement, with particular focus on mission critical stations. It is noted that recording the "as found" condition of every insulator is just not practical or cost effective.

Networks has experienced increasing failure rates of its insulators and this has led to more widespread invasive testing to detect cracked insulators and a proactive insulator replacement program has been in place since 2000. The replacement program has targeted the more failure prone cap and pin and multicone rigid insulators together with the older porcelain strain insulators.

Networks does not record the inspection and test results of the "as found" condition of its station insulators as this is just not practical or cost effective. Data is, therefore, not available to populate a Health Index. To obtain an assessment of the present condition of its substation insulators, Networks carried out a condition survey of insulators sampled/tested from a cross-section of substations in the province. The survey information includes inventories, demographics, and detailed test results for condition assessment. This information provides a better appreciation of the overall condition of Networks' insulator population.

3.2.8 Transmission – Station Cables and Potheads

This asset consists of cables and potheads associated with equipment located within the confines of a transmission station, such as station service transformer feeds, transformer to switchgear connections, and capacitor bank connections. Networks manages transmission station cables and potheads typically with voltage between 13.8kV to 44 kV. Cables and potheads are typically used when air insulated bus cannot be utilized because of space limitations.

Networks has undertaken condition surveys of station cables and potheads in the past. Information currently available is outdated and may not reflect current demographics or

asset condition. The survey typically was based on visual inspection and historical information/knowledge specific to each cable installation. The information collected can be used to assess the overall condition of cables and potheads and to identify those units with high risk of failure.
Cables used in transmission stations are typically short runs that are contained in a controlled environment (often in ducts) and subjected to visual inspection as part of regular station inspection. The inspections are carried out by checking for visual evidence of cracks, corrosion, overheating or distortion of the visible sections of the cables and physical damage or compound leaks from the potheads. These practices are consistent with the practices of other leading electric utilities.

There is only limited data available on the type, number and length of transmission station cables and of associated potheads. In addition to the cable circuits feeding station service transformers and capacitor banks, there are a large number of power transformer secondary cables feeding the associated LV switchgear, primarily in the urban areas. These represent the largest segment of the station cable population in the Networks system.

By careful examination of available cable, transformer and station records, it was possible to provide an estimate of the demographics of the critical transformer cable circuits in the Networks system. Table 3.19 below, shows the age of the cable groups associated with the power transformer secondary windings. About 73% of these cables are of PILC construction with the remaining 27% being XLPE. About 4,500 potheads and terminators are applied on these transformer secondary cables. Demographics data was available for approximately 72% of cables, providing a basis for a good age estimate of overall cable population.

	Age Group								
Voltage Class (kV)	**0-10yrs**	**11-20yrs**	**21-30yrs**	**31-40yrs**	**41-50yrs**	**>50yrs**	**Unknown**	**Total**	**(%)**
13.8	3	108	49	31	22	42	46	301	80.1%
27.6		15	10			6		31	8.2%
44		8		1	1			10	2.7%
Unknown		6	6	1	4		17	34	9.0%
Sub-Total	3	137	65	33	27	48	63	376	100.0%
%	0.8%	36.4%	17.3%	8.8%	7.2%	12.8%	16.8%	100.0%	

Table 3.19 - Transformer Secondary Cable Demographics (estimated)

Historically, Networks did not record the inspection and test results of the "as found" condition of its station cables and potheads. Data is, therefore, not available to populate a Health Index. To obtain an assessment of the present condition of its station cables and potheads, Networks needs to initiate a condition survey of all station cables and potheads.

The information collected will be used to assess the overall condition of cables and potheads and to identify those units with high risk of failure. Also, this will enable a Health Index to be developed in the future, that will identify and prioritize the high risk units on the system for replacement.

3.2.9 Transmission – Station Batteries and Battery Chargers

Circuit breakers, motorized disconnect switches, transformer tap changers and, in particular, the protection, control and communication (Telecom) systems in transmission stations must be provided with a guaranteed source of power to ensure they can be operated under all system conditions, particularly during fault conditions. There is no known way to store AC power thus the only guaranteed instantaneous power source in switchyards must be DC, based on batteries.

Networks currently manages 676 batteries and 685 chargers on the transmission system. A total of 424 batteries are designated as Station batteries supplying protection and control and other station ancillary DC services. All transmission stations in the Networks service area are provided with at least one Station DC system, comprising a battery, battery charger, and a DC distribution system made up of DC breakers, fuses and associated cable distribution system. The remaining 252 batteries are designated as Telecom batteries and are restricted to supply DC service - to communication equipment only- at selected stations. Station and Telecom DC systems are operated independently of each other when both exist at specific locations.

As shown in Table 3.20, about 86% of the batteries and 48% of the chargers are less than 20 years old. About 30% of the total chargers are more than 30 years old.

		Station Batteries		Telcom Batteries		Total Batteries	
			(%)		(%)		(%)
Age Group	0-10	178	26.3%	87	12.9%	**265**	39.2%
	11-20	195	28.8%	124	18.3%	**319**	47.2%
	21-30	36	5.3%	39	5.8%	**75**	11.1%
	unknown	15	2.2%	2	0.3%	**17**	2.5%
		424	**62.7%**	**252**	**37.3%**	**676**	**100.0%**

Table 3.20 – Transmission Batteries and Chargers Demographics

Networks operates an inspection and test program that is consistent with the practices employed by other leading electric utilities for battery and battery charger maintenance. In recent years, Networks has used this information to enable battery and charger condition to be determined in a more proactive and consistent manner. This will enable identifying and prioritizing high risk units for replacement.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for batteries and chargers based on the results of information gathered via regular maintenance activities.

Health Indices were developed for all 676 batteries. Similarly, Health Indices were developed for all 685 chargers. Results are shown in Figures 3.25 and 3.26.

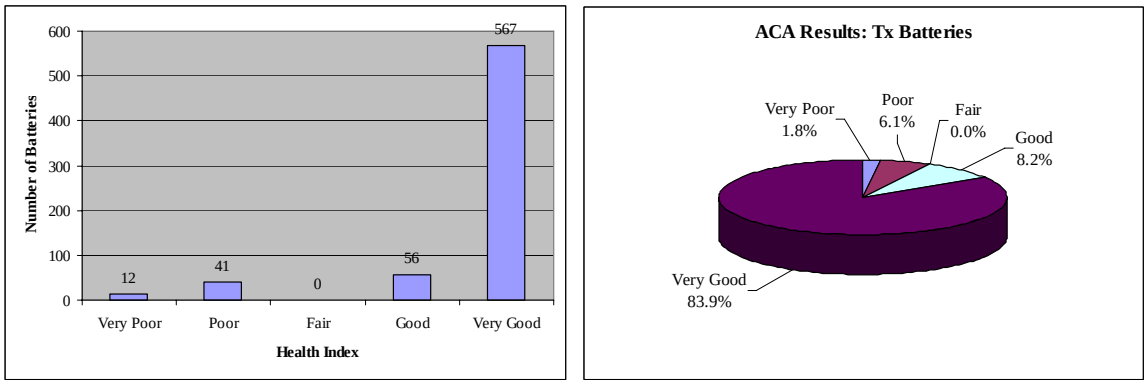


Figure 3.25 - Summary of Condition Assessment Results for All Batteries

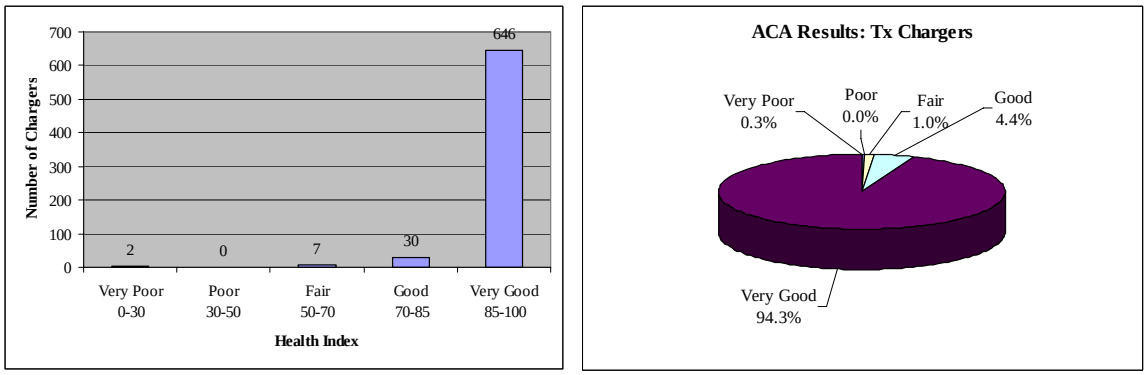


Figure 3.26 - Summary of Condition Assessment Results for All Chargers

Based on the above condition assessment, almost 1.8% of the batteries and about 0.3% of the chargers are at a very high risk of failure and replacement is required as soon as possible. Approximately 6.1% of the batteries are at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure. About 1.0% of the chargers will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement. Approximately 92.1% of the batteries and 98.7% of the chargers are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

Health Index condition assessment is not the only criteria used to determine the replacement rate of batteries and chargers. The end-of-life of batteries and chargers is based on a multi-criteria analysis which includes condition and with due consideration to other factors such age, criticality, performance, reliability, safety, and spare parts availability.

3.2.10 Transmission – Station Grounding Systems

Grounding systems are designed to ensure safety of personnel and equipment in and around transmission stations. Grounding systems provide a means of ensuring a common potential between metal structures and equipment accessible to personnel so that hazardous step, touch, mesh and transferred voltages do not occur. In addition, effective grounding systems limit the damage to equipment during faults or surges and they ensure proper operation of protective devices such as relays and surge arresters.

Networks currently manages 274 transmission stations, all of which have their own grounding systems. Demographic data was collected on 273 of these stations. Approximately 59% of the grounding systems were installed/upgraded in the last 50 years, while only 21% were installed/upgraded within the last 30 years, as shown in Table 3.21.

		Transmission & Switching Station Grounding Systems	(%)
Age Group	0-10yrs	13	4.7%
	11-20yrs	21	7.7%
	21-30yrs	24	8.8%
	31-40yrs	60	21.9%
	41-50yrs	42	15.3%
	>50yrs	113	41.2%
	Unknown	1	3.2%
	Total	274	100.0%

Table 3.21 – Transmission Station Grounding System Demographics

The condition of grounding connections above ground are routinely checked during routine maintenance and station inspections. Continuity tests or other tests on the grounding system are not routinely carried out to determine the grounding condition below grade.

Networks is completing a program to evaluate the adequacy of station grounding facilities at 75 high risk stations. The criteria used to select these sites were age, fault levels, history of faults, phase arrangement, soil resistively, station size, location (urban or rural) and re-development of adjacent properties. To date, 64 stations have been completed. These evaluations consist of soil resistively measurements, full determination of the ground network, fall of potential measurements and application of a software based model to assess the potential rise, and step and touch potentials for a maximum fault level. Based on the results of these detailed grounding assessment surveys, specific issues and deficiencies are determined. These are classified as high, medium or low depending on the severity and risks associated with each deficiency. Using this Health Index system, the adequacy of station grounding systems are determined and prioritized.

For the 75 sites selected for detailed evaluation, Networks is in the process of completing appropriate and effective evaluation procedures. However, what is difficult to assess is the condition of the grounding systems at the sites that are not included in the program. Without some capability and functionality assessment, we must accept that there is a high level of uncertainty associated with any comments on the condition of the grounding systems at these remaining sites. The overall process, based on an initial prioritization and then a more detailed assessment of sites at risk, is consistent with good asset management practices. This will enable resources to be targeted at high risk sites.

A grounding condition assessment was carried out on 64 high risk stations. Therefore, even though the sample selection was biased (i.e. not randomly selected) and there is no data available on the remaining sites, the current sample size is significant since it represents about 24% of the total population. Given these caveats, the results were extrapolated to the population for which demographic data was available.

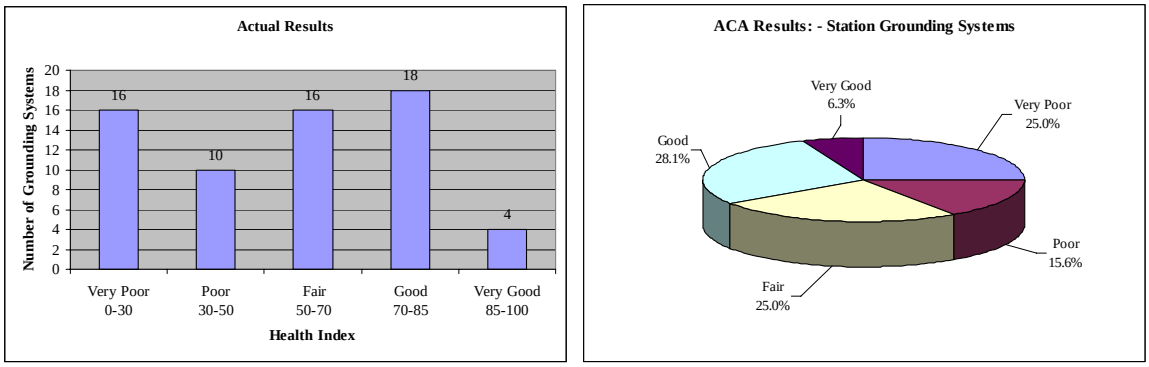


Figure 3.27 - Summary of 64 Station Condition Assessment Results for Grounding Systems

Based on the above, approximately 25% of the grounding systems assessed were found to be in "Very Poor" condition and are at a very high risk of failure. Replacement or major refurbishment of these is required as soon as possible to remove potential safety hazards and to prevent damage to equipment. All safety related items of an urgent nature, which are uncovered by the grounding evaluations are addressed and repaired immediately they are reported. Also, approximately 15% of the grounding systems assessed were found to be in "Poor" condition and are at a high risk of failure. Refurbishment or replacement is required within the next five years to remove other potential safety hazards and to prevent damage to equipment. Also, approximately 25% of the evaluated grounding systems will likely require increased maintenance and several grounding improvements to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/ improvement. The remaining 34% of the evaluated grounding systems assessed were found to be in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities and limited grounding improvements will be adequate to maintain them in this condition during the next 5-year period.

Because the data is drawn from the highest risk stations and that risk is a combination of age, probability of having problems, and the consequence of having problems, this

conclusion may not be representative of the whole population. Given that safety is involved, however it is reasonable to accept the extrapolation.

3.2.11 Transmission – Capacitors

Capacitor Banks (capacitors) are static devices whose primary purpose in power systems is the compensation of inductive reactance of other system components. They are a static source of reactive power on the transmission system that balance the inductive demand on the system and provide the necessary voltage support needed for efficient power transmission. In general, system operators try to balance the capacitive and inductive demand on the system at all points on the system by adding or removing shunt capacitors.

Networks manages 316 capacitors located in transmission stations. Approximately 86% of capacitors are used at voltages under 50 kV, as shown in Table 3.22. In addition, almost 87% of the capacitors were installed within the last twenty years.

		Voltage Class				
		< 50 kV	115 kV	230 kV	Total	(%)
Age Group	0-10	92	10	9	111	35.1%
	11-20	149	9	5	163	51.6%
	21-30	6	4	5	15	4.7%
	31-40	18	1		19	6.0%
	41-50	5			5	1.6%
	>50	0			0	0.0%
	unknown	3			3	0.9%
	Total	273	24	19	316	100.0%
	(%)	86.4%	7.6%	6.0%	100.0%	

Table 3.22 – Transmission Station Capacitors Demographics

Networks operates an inspection and test program which is similar to practices employed by other leading electricity companies for capacitors maintenance. In recent years, Networks has used this information in a proactive manner to allow capacitor condition to be determined in a consistent manner. This enables a proactive replacement program for capacitors.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for capacitors based on the results of information gathered via regular maintenance activities and the 2002 asset condition survey.

Health Indices were developed for 310 capacitors on nine criteria, and then extrapolated to the full population. Approximately 98% of all the capacitors had sufficient data for developing the Health Index. The extrapolated results are shown in Figure 3.28.

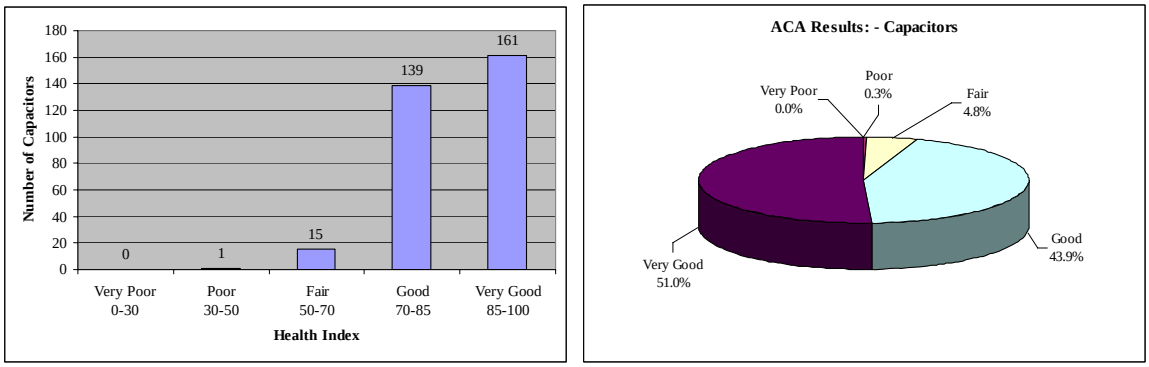


Figure 3.28 - Summary of Extrapolated Condition Assessment Results for Capacitors

Based on the above, none of the capacitors is at a very high risk of failure. In addition, only one of the capacitors is at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure. Also, approximately 5% of the capacitors will likely require increased maintenance/monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement. The remaining 95% of the capacitors are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

Health Index condition assessment is not the only criteria used to determine the replacement rate of capacitor banks. The end-of-life of capacitor banks is based on a multi-criteria analysis which includes condition and with due consideration to other factors such age, criticality, performance, reliability, safety, and spare parts availability.

3.2.12 Transmission – Station Buildings

Networks owns a number of transmission station buildings of different types and sizes. These buildings include equipment and technical buildings, and administrative and services buildings. They have been constructed over a long period of time to meet the particular needs of the time and were constructed in accordance with the required building standards.

Networks has 889 buildings located in or adjacent to transmission stations, and spread throughout the province. Approximately, 78% of the total population is in the southern region of the Networks system, as shown in Table 3.23. Southern is defined as the central western and eastern "Business Group" areas.

		Number of Buildings			
		Northern	**Southern**	**Total**	**(%)**
Building Type	Mission Critical Building	73	368	441	49.6%
	Auxiliary System Building	28	109	137	15.4%
	Occupied Buildings	38	117	155	17.4%
	Ancillary Buildings	59	97	156	17.5%
	Total	**198**	**691**	**889**	100.0%
	(%)				

Table 3.23 – Transmission Buildings Demographics

Networks operates an effective routine maintenance program and a more complete assessment, on a 3-year cycle, of overall building condition. This enables detection and repair of minor building defects and identification of significant deterioration requiring more substantial repair or refurbishment in an effective manner. This process enables Networks to maintain the condition of its buildings in a serviceable condition at minimum cost and to prevent potential damage to electrical equipment by providing a good quality environment.

The routine inspection and remedial action to address minor defects is usually carried out by electricity companies as part of their standard station inspections. In this regard the Networks process is very similar to other companies. The regular 3-year condition assessment of buildings is a more systematic approach than taken by most other companies.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for buildings based on the results of information gathered via regular maintenance activities.

Health Indices were developed for all 889 buildings based on three criteria, and then extrapolated to the full population. Approximately 87.4% of all the buildings had sufficient data for developing the Health Index. The extrapolated results are shown in Figure 3.29.

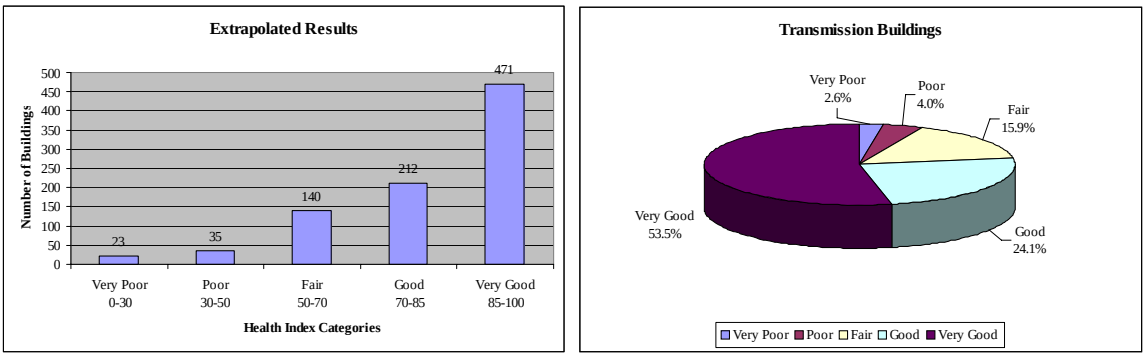


Figure 3.29 - Summary of Extrapolated Condition Assessment Results for Buildings

Based on the above, approximately 2.6% of the buildings are at a very high risk of failure and refurbishment or replacement is required as soon as possible. In addition, approximately 4% of buildings are at a high risk of failure and refurbishment or replacement is required within the next five years. Also, approximately 16.6% of the buildings will likely require increased maintenance or capital improvement over the next 5 years to ensure that their condition does not deteriorate further over. The remaining 76.8% of the buildings are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.2.13 Transmission – Fences

It is the practice of Networks to erect security fences around their electrical plant facilities, including transmission stations and exposed high voltage cable terminations. This practice is for the purpose of protecting the public from hazardous electrical contact, and to protect these facilities against intrusion and vandalism. The security fences can be of several types such as steel chain link, aluminum chain link, wood, masonry and Durisol.

Networks currently manages 299 transmission fences of which 25 are for microwave repeating stations and 272 for transmission stations. As can be seen in Table 3.24, over 30% of the length is more than 30 years old.

		Length of Fences (m)	(%)
Age Group	**0-10yrs**	14895	9.34
	11-20yrs	30193	18.93
	21-30yrs	25366	15.90
	31-40yrs	21296	13.35
	41-50yrs	14148	8.87
	>50yrs	11169	7.00
	Unknown	42468	26.62
	Total	159536	

Table 3.24 – Transmission Fences Demographics

Networks has a routine inspection, assessment and repair program for transmission station fences, which is typical of programs employed by electricity companies throughout the world. It is based on recognition of the importance of maintaining fences to prevent unauthorized entry to stations and enables damage and defects to be effectively dealt with in the short term.

In 1999 Networks undertook a complete survey of their transmission and station fences, using a standard inspection proforma based on a routine inspection protocol. This condition assessment program enabled the overall condition of station fences to be determined. It therefore provides the basis for identifying the requirements for an

effective and appropriate program of refurbishment and replacement for transmission station fences in the medium term. This data was updated in 2006, in view of the increased age of Fences.

The routine inspection process and remedial action to deal with specific defects undertaken by Networks is very similar to the process by leading companies. The complete survey of fences undertaken in 1999 by Networks and the use of the information to provide an overall assessment of condition, thus enabling longer term replacement and refurbishment planning, is not a process that is widely used in other companies. Most companies deal with fences on an individual basis and react to reports from the routine inspections to initiate more detailed assessment of condition and refurbishment needs on an individual station basis.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for fences based on the results of information gathered via regular maintenance activities.

Health Indices were developed for all the 299 station fences on six criteria, and then extrapolated to the full population. Approximately 91.6% of all the fences had sufficient data for developing the CBHI. The extrapolated results are shown in Figure 3.30.

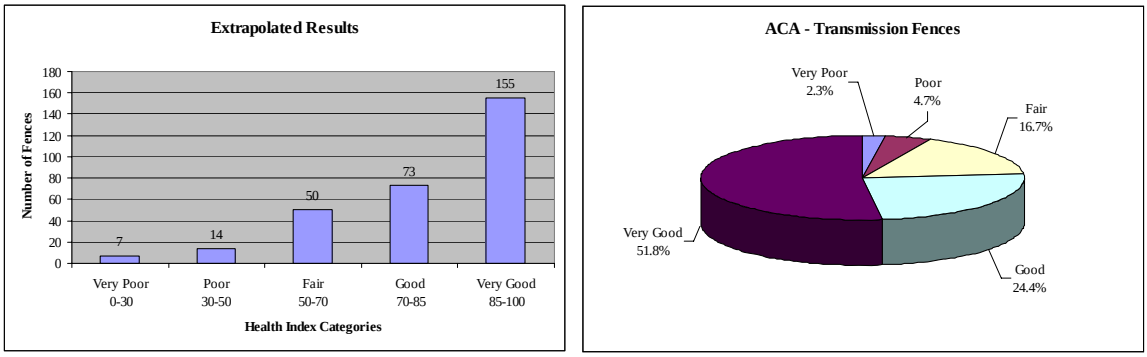


Figure 3.30 - Summary of Extrapolated Condition Assessment Results for Fences

Based on the above, approximately 2.3% of the fences were at a very high risk of failure and replacement is required as soon as possible. 4.7% of fences are at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure. 16.7% of the fences will likely require increased maintenance/ monitoring or specific intervention to ensure that their condition does not deteriorate further over the next 5 years and should be considered candidates for future refurbishment/replacement. 76.2% of the fences are in “Good” or “Very Good” condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.2.14 Transmission – Station Drainage and Geotechnical Systems

The Transmission Station Drainage and Geotechnical asset class includes drainage facilities for the removal of surface and ground water, and civil facilities such as roads, yard subsurface and surface, and footings. Drainage is a practical and economical way of improving and maintaining firm, dry, stable sub grades for support of roads, railways, and foundations for structures and buildings and reducing step-and-touch potential.

Networks currently manages 288 transmission stations and miscellaneous sites. These stations have roads, yards and footings and drainage systems consisting of various components. Approximately 60% of the population, with a known age, is more than 30 years old, as shown in Table 3.25.

		Total	(%)
Age Group	0-10yrs	4	1.4
	11-20yrs	18	6.3
	21-30yrs	25	8.7
	31-40yrs	49	17.0
	41-50yrs	41	14.2
	>50yrs	76	26.4
	Unknown	75	26.0
	TOTAL	288	100.0

Table 3.25 – Transmission Drainage Demographics

Networks operates an effective routine drainage and geotechnical system maintenance program; and it backs this routine program up with a more complete assessment of overall site drainage systems and geotechnical conditions on a 1 to 10-year cycle. This enables detection and repair of minor defects and identification of significant deterioration that require more substantial repair or refurbishment in an effective manner. The process enables Networks to maintain the condition of its transmission station drainage and geotechnical systems in a serviceable condition and so prevent potential damage to electrical equipment at minimum cost.

Using a multi-criteria decision analysis approach, a condition based Health Index was derived for drainage and geotechnical systems based on the results of information gathered via regular maintenance activities.

Health Indices were developed for 286 stations/sites based on seven criteria, and then extrapolated to the full population. Approximately 76.6% of all the drainage and geotechnical systems had sufficient data for developing the Health Index. The extrapolated results are shown in Figure 3.31.

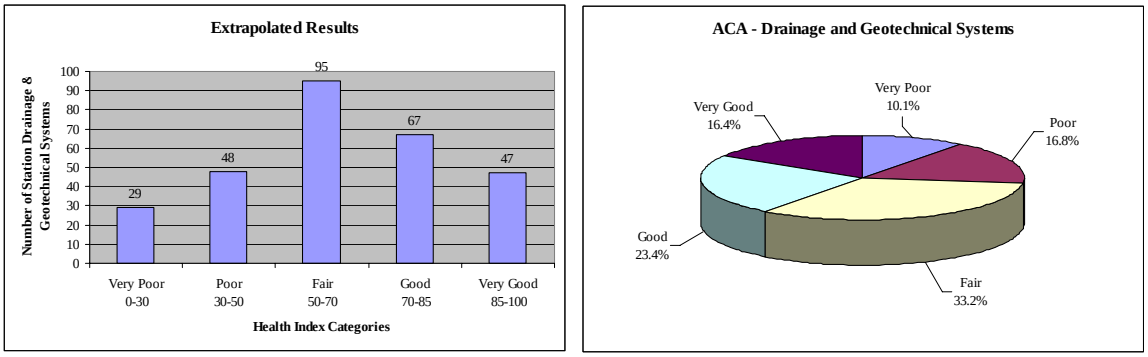


Figure 3.31 - Summary of Extrapolated Condition Assessment Results for Drainage and Geotechnical Systems

Based on the above, approximately 10.1% of the transmission station drainage and geotechnical systems are at a very high risk of failure and refurbishment or replacement is required as soon as possible. In addition, approximately 16.8% of them are at a high risk of failure and refurbishment or replacement is required within the next five years to prevent imminent failure. Also, approximately 33.2% of them will likely require increased maintenance or inspection over the next 5 years to ensure that their condition does not deteriorate further. The remaining 39.8% of the drainage and geotechnical systems are in "Good" or "Very Good" condition and it is expected that ongoing maintenance activities will be adequate to maintain them in this condition during the next 5-year period.

3.2.15 Transmission – Station Fire and Security

The Security and Fire Protection asset class includes systems for protection of transmission station facilities owned by Networks from the threats of fire, break-ins and vandalism. Networks owns a large number of transmission stations and buildings of different types and sizes and has installed some form of security and fire protection measures for protection of the various facilities at each of these locations. The security systems include additional measures ranging from conventional door control security systems to video surveillance facilities. The fire protection systems are primarily of two types: those associated with buildings and those associated with equipment.

Networks currently manages 15 deluge fire protection systems and 142 integrated site security systems within its transmission stations. Approximately 33% of the fire systems are more than 30 years old, as shown in Table 3.26.

		Number	
		Total	(%)
Age Group	0-10yrs	2	13.33
	11-20yrs	4	26.67
	21-30yrs	4	26.67
	31-40yrs	2	13.33
	41-50yrs	3	20.00
	>50yrs	0	0.00
	Total	15	

Table 3.26 – Transmission Fire Protection System Demographics

Initially, Networks installed security systems as a result of 'reactive, after the fact,' approaches following occurrence of incidents. A strategy for standardization of security systems at transmission stations is being developed, but has not yet been adopted. Thus there is no standard for security systems design, for regular inspection practices, or for maintenance procedures and frequency of such procedures at transmission stations. However, inspection practices are addressed in the Station Inspections Requirements Policy where (a) frequency of inspections is determined based on past security incidents; and (b) fire extinguishing equipment is routinely inspected and maintained. The situation for fire protection systems is similar, in that there are no standards for their design or for their inspection and maintenance.

Routine inspections and remedial actions to address defects are universally carried out by electric utilities as part of their standard transmission station inspections. In this regard the Networks process is similar to that followed by other utilities. The regular monthly and triennial condition assessment of buildings, which includes inspection of their security and fire protection systems, provides a more systematic approach for monitoring of these systems than taken by most other companies. In contrast, for Networks to emulate the increasing practice of many utilities in the reliance on centralized monitoring of facilities to replace on-site inspections would require considerable investment in surveillance equipment and in monitoring staff.

Although Networks does not have sufficient information available at this time for conducting condition assessment of fire and security systems it is possible to suggest Health Indices for this purpose. However a Health Index for security systems needs to take into effect the individual characteristics of the security system in question and will, therefore, need to be developed on the basis of the proposed survey specifications for these systems when they are defined.

Since a formal condition reporting process for these assets is not in place, accurate information about the performance and condition of these systems is not available. Networks operates a routine maintenance program, as well as, a more complete assessment, on a periodic basis, of overall building condition. There is a need to include specific provisions related to security and fire protection systems in these reports. This information would assist in developing a database that will be useful in estimating the performance or condition of the existing installations.

3.3 P3 Assets

3.3.1 Transmission – Protection System Monitoring

Protection system monitoring devices, including annunciators, digital fault recorders (DFRs) and sequence of events recorders (SERs) are widely deployed in transmission stations to provide detailed information on protection operation. The annunciators currently in use are solid-state electronic devices and the DFRs and SERs are microprocessor and PC based. The capability and sophistication of these devices has been rapidly developing over the past 15 years. As a result of this rapid development, issues of obsolescence, functionality, spare parts and support, particularly related to compatibility with modern IT and communication systems, are the main end-of-life factors. Condition is not normally a significant issue.

Although most such devices are (by power systems asset terms) relatively young, significant replacement or upgrading of units is required to address the issues mentioned above. Many of the more recent devices are self-monitoring and provide an automatic indication of any loss of functionality. In addition to this, functionality checks would normally be carried out in conjunction with protection testing and inspection cycles.

3.3.2 Transmission – Station Buses

Station buses generally consist of rigid aluminum tube, solid copper tube or flexible ACSR conductors supported by insulators. These are robust, static devices that are subject to visual inspection and thermal imaging during routine substation inspection. Any indication of damage, deterioration or localized heating leads to further tests and if necessary remedial action. It is possible that corrosion, particularly of the aluminum buses, could result in significant degradation that would require replacement, but, in general, these items outlive other substation equipment and would normally be replaced only as part of major substation refurbishment or development.

3.3.3 Transmission – Station Surge Protection

Most utilities limit their assessment of surge arresters to visual inspection and thermographic testing on an annual basis. Any additional assessment would normally only be undertaken where there was a specific concern related to increasing or unacceptable failure rate or a suspicion of problems with a particular type or batch of arresters.

Surge arrester replacement is normally as a result of failure or obvious deterioration or damage detected by visual inspection. If an increasing failure rate is observed, removal and full electrical assessment and destructive examination may be initiated. This can identify/confirm a generic failure process and may lead to a decision to pre-emptively replace batches of arresters at particular locations or in some cases to the definition of a maximum lifetime for particular types.

3.3.4 Transmission – AC/DC Service Equipment (Excluding Batteries and Battery Chargers)

These are the supply systems that provide power to the auxiliary equipment in the station such as fans, pumps, heating, lighting etc. Generally these systems are treated as part of the station infrastructure and are inspected and functionally tested during routine station inspections, typically on a quarterly basis. In most cases, any loss of supply would automatically trigger an alarm. In the UK and North America most of these systems are dual feed arrangement to minimize the impact of any local supply problems.

As with other infrastructure components, observation of significant damage or deterioration or any loss of functionality detected from inspection or as a result of alarms are addressed by appropriate remedial action. Consideration for more significant intervention, i.e. refurbishment or replacement of systems would normally only occur if the level of ongoing work was high or if a specific report indicated serious degradation. In most cases there would not be a systematic condition assessment carried out. Such a program would only be undertaken if the company became aware of widespread problems via the routine inspection and referral processes.

Other than in these circumstances, end-of-life would normally be related to other activity in the substation, i.e. major development, renovation or replacement of major plant and equipment.

3.3.5 Transmission – HV/LV Station Structures

The majority of transmission station structures are reinforced concrete, galvanized steel and some wood poles. These are subject to inspection as part of routine substation inspection, typically on a 3-month cycle.

Degradation resulting from corrosion of the reinforcing bars in the concrete can be a very destructive process. Visual inspection can only detect this at a relatively advanced state. Deformation or cracking of the concrete is indicative of an advanced corrosion situation. Treatment is difficult and expensive, involving the removal of the concrete and treatment of the reinforcing bars. In most cases when evidence of such damage is noted the initial reaction is to make short-term repairs. These are not usually very successful and ultimately more significant refurbishment or replacement will be required. End-of-life for these structures can be defined by the presence of widespread damage (cracking of concrete spalling). Other than this, concrete structures would normally only be replaced as part of major substation refurbishment usually initiated by the need for replacement or refurbishment of the major plant or by significant development of the system.

The degradation of steel structures is mainly as a result of corrosion, as described in asset class 3.3.15. The rate of degradation is very dependent on the environmental conditions to which the structures are subjected. Industrial pollution is a particular problem for galvanized steel.

For wood poles or structures the issues of degradation and assessment are the same as those for wood poles on overhead lines, which is addressed in asset class 3.1.9. Methods of assessment and procedures for determining end-of-life based on remnant strength are well established.

3.3.6 Transmission – Heating, Ventilation and Air Condition (HVAC)

Traditionally, the approach to the control of the indoor environment in transmission stations has been one of a combination of heating and active ventilation. In more recent times and driven by station operating cost considerations, de-humidification systems have become more widely employed, either as an alternative to heating systems, or in combination with them. Active ventilation systems are installed to provide a pre-requisite number of air changes per hour, particularly to ameliorate the build-up of potentially hazardous gases or vapours in the stations, arising from both normal and abnormal operation.

A variety of electric heating systems are employed and these can include radiant heaters, convectors, storage heaters or hot air blowers. Control of such heaters can be automatic, via time switches or thermostats or they can be manually switched by station personnel.

Active ventilation systems are predominantly based on through flow fan systems, with appropriate inlet and extraction points and ductwork. Station air inlet can be via the de-humidification systems, where these are employed. Ventilation systems tend to run continuously.

De-humidification systems, installed to either reduce heating loads or to substitute for heating, can either be desiccant based or mechanical, refrigeration type units. Such de-humidification systems tend to operate continuously in combination with the ventilation systems.

Maintenance of heating and ventilation systems is essentially time based and relates to visual and electrical safety inspections, together with the cleaning of ventilation grills, filters and ductwork. De-humidification equipment is maintained and serviced in accordance with the suppliers' maintenance schedules.

3.3.7 Transmission – Boilers and Pressure Vessels

The inspection and maintenance of boilers, pressure vessels and their associated pressure relief devices is a highly regulated activity and subject to the relevant statutory codes, standards and legislative requirements in the particular operating territory. For example, equipment will usually be designed in accordance with ASME codes, for the North American market. The relevant statutory bodies and legislation will govern the installation, pressure testing, commissioning, ongoing maintenance and inspection of pressure systems. The legislation will usually define a "competent person" for the purposes of performing such activities; in practice such competent persons will usually be employed by specialist engineering insurance companies, who will underwrite the insurance of the pressure systems.

Marking, identification, a series of regular and defined inspection and maintenance schedules, all supported by a formalized system of documentation and record keeping all comprise the essential pre-requisites of any pressure system operational schedule. The detailed implementation of this will vary, according to the particular territory.

3.3.8 Transmission – Oil Containment Systems

Over the past 20 years there has been growing awareness of the need to contain oil spillage from major plant. Growing awareness of environmental issues and tightening of legislation and increased penalties have forced electric utilities to address this issue in a more systematic and consistent fashion. Prior to this period, oil containment was a feature for major transformers but the application was varied and non-uniform. Over the past 20 years, the onus has been on ensuring that the oil containment systems for all major transformers are to a uniformly high and acceptable standard. It is understood that that for many leading electric utilities, this program has been completed. Several cases are known where the local environmental authorities have audited oil containment systems.

Maintenance and ongoing management of oil containment systems is generally limited to visual inspection as part of routine substation inspection with functional checks on pumps used to remove rainwater. As part of the program to ensure that oil containment systems are to a uniformly high and acceptable standard, an overall assessment of their condition would have been undertaken resulting in upgrading or replacement as necessary. As most systems will therefore have been subject to relatively recent assessment, and if necessary upgrade/refurbishment, condition based end-of-life would not normally be considered a significant issue. However, if a major defect or damage was detected during routine inspection a full assessment, and if necessary appropriate repair or replacement, would be undertaken.

3.3.9 Transmission – Oil and Fuel Handling Systems

Experience shows that very few utilities operate significant numbers of fixed oil handling systems. Oil handling and management on individual transmission station sites is usually undertaken using oil tankers or oil provided in drums. Historically electric utilities operated central oil handling, and some of them operated oil-reprocessing plants. However, in recent years most utilities have closed these down due to increased maintenance costs and the desire to contract out specialist services. Most utilities contract out oil handling and processing activities to a dedicated oil supply company.

In a small number of cases electric utilities operate relatively large mobile reprocessing facilities, typically for reprocessing oil in transformers in situ. However, in most cases these activities are contracted out to specialized oil companies.

3.3.10 Transmission – Microwave Radio Systems

Microwave radio systems comprising towers, antennae, radio and multiplex equipment are a traditional means of providing effective communication between major substation sites and central control facilities. They are widely used by electricity companies

although to some extent they are being replaced by fibre optic communication systems. In our experience, a typical maintenance/inspection program consists of a six-month interval inspection of the mast and antennae. This is both to check alignment and to detect damage and assess condition. Damage or degradation sufficient to warrant need for repair, i.e. painting or structural steel member replacement, would be noted and appropriate action taken. If more widespread degradation was reported (presumably due to lack of action to previous reports) an overall assessment may be carried. If it was decided that the system required significant work to maintain its functionality and safety it is likely that it would be replaced by an alternative communication means. However, as indicated above, the main reason for replacing systems would be the introduction of fibre optic or other modern systems with greater functionality.

Radios and power supply equipment are also typically subject to six-monthly inspection, including battery checks, plus an annual functional performance check against specifications in accordance with the manufacturer's recommendations. Any minor problems would be dealt with by repair. Major problems would probably lead to a decision to replace with an alternative system.

3.3.11 Transmission – Fibre Optics

In the 1990s many electric utilities installed fibre optic links using either a wrap around on the overhead groundwire of their transmission lines, an underslung self-supporting cable or fibres integral with the overhead groundwire. In some cases these were comprehensive systems linking all the main sites in the company, in others it was limited to a few experimental links.

There were some initial problems related to the installation processes causing damage to the fibres and some difficulties with splices, but subsequently we believe that the systems have proved reliable and effective.

The hardware on the lines is subject to inspection as part of the routine overhead line inspections. Other than that any remedial work is as a result of component failures.

3.3.12 Transmission – Metallic Cables (Pilot Cables)

These are used to provide telecommunication channels for protection and control purposes. Based on UK and North American company experience, these are subject to periodic insulation resistance tests and continuity checks. These measures enable degradation to be detected and monitored, with unacceptable levels stipulated in the maintenance manuals. In many cases metallic cables are self-monitored, any indication that they are outside specified limits would trigger an alarm.

The frequency and content of the periodic tests varies depending on the application of the pilot cable.

3.3.13 Transmission – Site Entrance Protection Systems

This category consists of equipment required to protect metallic telecommunication cables (Networks and those of the telephone companies) that enter high voltage transmission facilities. The predominant equipment type is the neutralizing transformer; other types include isolating transformers and optical isolators. The most important functions performed by this equipment are safety of people and sustaining the operation of teleprotection systems during power system faults.

In the UK these assets are classified as part of the grounding system for stations. They are therefore managed and maintained as part of the grounding system. However, in other electric utilities they are considered to be part of the Protection and Control or the Communications asset groups.

A typical UK electric utility maintenance manual requires an annual check of the system against manufacturer's specifications. However, in North America, site entrance protection equipment is typically inspected and tested on a 1 to 3-year cycle to assess general condition and to ensure that ground connections have not been damaged or disturbed. Failures are typically due to lightning, accidental mechanical damage or wiring changes made by others.

3.3.14 Transmission – Teleprotection Tone Equipment

This equipment is a system utilizing telecommunication systems (usually owned by telecommunication companies) to send blocking or tripping signals to remote locations for protection purposes. The equipment owned by the electric utility is typically limited to the 'send and receive' multi-channel electronic devices in the transmission stations. The system is quite widely used as an alternative to metallic (pilot) wires.

Timing tests are carried out during commissioning and on watchdog monitors once the system has been commissioned. Some utilities carry out regular 'timing' tests to check the performance and functionality of the system. As with other electronic equipment these are repaired or replaced when failures occur. As they are multi-channel devices there is often some built in redundancy allowing flexibility in managing failures.

3.3.15 Transmission – Line Steel Structures

Steel structures are subject to regular (often annual) inspection either by foot or helicopter patrol. The intervals depend on numerous criteria such as location with respect to density of population, environmentally sensitive areas and areas prone to vandalism. The inspections (described as safety and security inspections) are intended to detect significant defects and initiate remedial action as part of a maintenance activity.

More detailed inspections, designed to assess the condition and identify the need for significant refurbishment are undertaken much less frequently. These are either initiated by a system referral (following an increasing defect level in the safety and security inspection or other recognition of poor condition) or on a regular time cycle. In the UK

and in North America typical electric utilities may use a 15-year cycle. These condition assessments normally involve a detailed, ground based, inspection and a sample (typically 10%) climbing inspection. In some cases more frequent climbing inspections are undertaken on structures related to critical spans (major road crossings etc).

The major expenditures that may be required with respect to the continued safe usage of the steel structures usually involve protective coatings of the structures to prevent structural strength deterioration due to corrosion and also to appease neighbours living in the vicinity of the structures. The frequency of painting varies with location, 12 to15-year cycles were used widely in the UK but in recent times budgetary pressures have led to many utilities attempting to introduce a more variable condition based approach. In North America most utilities do not routinely paint galvanized structures. Increasingly, assessment of the need for painting is being incorporated into the general inspection cycle. Timely painting (before corrosion takes hold) can extend structure life almost indefinitely. One North American electric utility reported significant costs associated with the removal of lead based paint from previously painted steel structures before repainting could be carried out.

In many countries with less corrosive atmospheres steel structure painting is not a normal activity. In such conditions, structures are reported to perform satisfactorily for more than 60 years before corrosion becomes an issue. If inspection reveals significant corrosion and loss of metal, replacement of damaged members can be economically undertaken. Decisions to replace a complete structure due to condition would normally only be undertaken if there was very widespread and extensive corrosion. Decisions to repair or replace are either based on operational/safety considerations related to climbability, or structural assessment revealing an unacceptable loss of mechanical capability.

As the above discussion indicates, degradation and ultimate end-of-life is generally as a result of corrosion. Where corrosion is successfully prevented structures have a long lifetime. Many structures in the UK and in North America are now in excess of 60 years old and some concern has been expressed that they may be subject to some other significant long-term degradation process, such as metal fatigue. A recent review/research related to world wide practices did not reveal any other obvious end-of-life issues.

The condition of structure foundations is normally only considered for lines greater than 50 years old at the time of a proposed major refurbishment. There is some (limited) experience of footing corrosion leading to tower failures. Assessment is either by sample excavations or by use of a simple electrochemical technique (polarization resistance) that can be applied economically as a screening test to all structures. Experience in the UK has indicated that, for pre World War II towers, corrosion of footings may be a significant issue, particular for grillage type foundations. More general assessment of foundation capability on old lines has been undertaken by several utilities in different countries usually in response to specific structure failures. Retrospective application of modern design packages to existing lines can reveal designs that are unacceptably close to their limit.

The assignment of Geographic Position System (GPS) co-ordinates is an ongoing process in utilities that are looking at means of minimizing maintenance efforts, such as describing a physical location to a contractor or utility crews concerned with corrective maintenance on facilities.

The use of optical and laser instrumentation to define points of attachment for the insulators and conductor clamps are being introduced to assist in engineering calculations for conductor sags and operating temperatures.

The resistance-to-ground of steel structures affects step-and-touch potentials and the practices among North American utilities varies from “no routine measurements of the resistance-to-ground” to “repeat measurements on cycles ranging between 5 and 10 years”. Others perform such measurements when line performance deteriorates, when lightning performance is adversely affected and when there is a plan to install lightning arresters to improve the line performance.

The above discussion is based mostly on North American and UK experience (with some input from other European countries, Australia, New Zealand and the Middle East). For instance, the nature and frequency of inspection and condition assessment in the UK is largely dictated by the rate of atmospheric corrosion. It is likely that this will be slower in Ontario (except in localized areas of industrial pollution) and therefore the longevity of towers would be expected to be greater and the frequency of inspection/assessment lower.

3.3.16 Transmission – Lines Shieldwire and Hardware

Shield wires are either smaller ACSR conductors or galvanized steel stranded conductors mounted above the phase conductors and solidly connected to ground through the tower steel or ground conductor. In either case corrosion is likely to be the major degradation process. Galvanized steel stranded conductors will typically suffer corrosion at a faster rate than the ACSR phase conductors. This is particularly true for galvanized steel stranded conductors. As with phase conductor assessment of degradation can be determined by mechanical testing of samples. Such testing would normally be undertaken when a specific problem was indicated either from visual inspection or based on experience of the longevity of similar conductors in specific locations. It should be noted that the rate of degradation is very dependent on environmental conditions. For galvanized steel the level of industrial pollution is particularly significant.

Lines are generally subjected to frequent (annual) inspection either by helicopter or on foot. Although it is difficult to detect conductor or shield wire degradation from a visual inspection, severe damage resulting in bulging or broken strands would be detected. Such an observation would then initiate a more significant investigation of the condition of the shield wire. Additionally, more detailed inspections are often undertaken on a periodic basis, when the steel structures are inspected. This would involve some climbing inspection. These may also reveal obvious evidence of shield wire degradation.

Shieldwires are sometimes replaced due to higher fault current levels being experienced as a result of capacity changes in the system. In some cases this higher fault current is only experienced near transmission stations and therefore the replacement of the shieldwires is limited to a short distance from the station to, say one kilometer from the station.

The major areas of maintenance and safety concerns center around hardware attached to the shieldwires to prevent damage due to vibration and/or galloping, damage at the clamp points due to vibration and damage caused by direct hit lightning strokes. Weights from some older types of vibration dampers are reported to fall off due to failure of the connection between the weights and the supporting stranded wires that attach to the shieldwire.

Steel stranded shieldwires corrode over time and when replacements are needed, alumoweld or other types of materials are used that are not as prone to corrosion. Shieldwire construction that incorporates fibre optical strands are frequently used in new construction or replacement projects in order to provide communications facilities for the utility or opportunities for renting dark fibres to other parties.

As the degradation process is very sensitive to local environmental conditions, the most appropriate interval for inspections and tests should be based on shield wire performance in the specific local conditions.

3.3.17 Transmission – Lines Insulators and Hardware

Line insulators are predominantly manufactured from brittle materials (porcelain or glass). As previously discussed in the section covering transmission station insulators, it is very difficult to detect degradation prior to failure for such materials. There are a number of long term degradation processes involving moisture ingress, corrosion and cement growth within the body of the insulator that result in the build up of internal stresses ultimately leading to failure. However prior to failure there will be very little physical indication of a problem.

Even detection of cracked (failed) insulators is not straightforward. Under dry conditions a cracked insulator will behave very much like an intact insulator. Many attempts have been made to develop an effective means of detecting cracked insulators using non-invasive techniques such as radio frequency measurements, infra-red cameras etc. Generally these have not been very successful. It is believed that the only reliable means of detecting cracked insulators is by very detailed visual examination, direct resistance measurements of individual sheds or the application of a voltage across the shed. The problem is more difficult with porcelain than glass insulators as these tend to fail by means of a hairline crack that is difficult to detect. Glass insulators tend to shatter.

Generally insulator lives tend to be long and, in many cases, will be in excess of that of the conductor (particularly in the UK where conductor life tends to be relatively short). In these cases it would be normal practice to replace insulators at the time of re-conductoring. However in some cases (often related to batch problems with an insulator

manufacturer) the insulator lifetime has been shorter. If the number of insulator failures becomes significant some more detailed assessment or proactive replacement may be undertaken.

Another significant issue related to insulators is damage/degradation of the U-bolts fixing the insulator to the tower cross arm. These are subject to constant movement resulting in particularly rapid corrosion and wear. In many cases it has been found that this type of damage to the U-bolts is faster than any other degradation process on an overhead line, i.e. these are the components that require replacement first. Their condition then becomes the benchmark that fixes the periodicity of the inspection/ refurbishment cycle.

Wear and corrosion of U-bolts can be detected by visual inspection but because the most severely effected area is at the interface of two components, effective determination of severity can only be achieved by a very close visual examination during a climbing inspection or by the use of gyro-stabilized binoculars from a helicopter.

As lines are inspected by helicopter or on foot on an annual basis there are many opportunities to examine insulators, however, it is difficult to obtain meaningful information from such inspections on the insulator or the U-bolts unless the inspection is carried out from a hovering helicopter with the appropriate inspection tools. Climbing inspections provide a closer opportunity at higher per unit costs. Frequency and timing of climbing inspections will be related to the local experience of the critical degradation processes, which are very sensitive to environmental conditions.

4. Audit of ACA Data Collection Process

This audit was intended to confirm that the process established by Networks to obtain condition information from field staff for the Priority 1 (P1) and Priority 2 (P2) asset classes met the following criteria:

1) has been clearly defined by Networks
2) has been clearly communicated to field staff
3) has been properly and accurately collected by field staff
4) has been properly and accurately recorded on site by field staff in accordance with the defined schedule
5) was properly and accurately recorded electronically by field staff in a timely fashion after site work was completed
6) is readily available to Networks staff for the purpose of analyzing asset condition

The data collection process was audited, complete with demonstrations of its execution, with the help of sample data. Weaknesses or deficiencies that may affect the integrity of accumulated condition related data and information were identified.

The following discussion of audit results is presented according to the grouping discussed previously: lines and ROW assets, and station assets.

4.1 Audit of Lines and Rights-of-Way

Most of the information gathered from the asset examination in the field compared favourably with the data provided from the electronic databases by the field staff. However there were a few instances where this was not the case. These discrepancies fall into two categories:

- Discrepancies between Geographic Information System (GIS) and the actual Global Positioning System (GPS) location in the field, and
- Discrepancies between the asset condition data provided and the actual condition of the asset in the field.

Otherwise, generally the field assessment carried out by the auditors found reasonably good consistency between the data base information and the actual measurements in the field.

4.2 Audit of Station Assets

- Most of the visual inspections in the various stations agreed with the information in Hatch Acres database.
- Most of the condition information in Hatch Acres database was accurate and consistent with the data available on site.
- Outstanding information from site audits was subsequently audited at HO.

- There is a time lag (± 4months) between asset inspection on site and the uploading on the work management system (Passport).
- Generally the majority of condition data were in agreement with the information that Hatch Acres used for the purpose of analyzing asset condition.

4.3 Audit Conclusions

Field audits were undertaken for most of the P1 and P2 assets, to ascertain the degree of conformance of data collection activities to defined procedures and practices, and the degree of conformance of observed conditions to recorded field data and stored data.

In general, the auditors found that data was being collected by field groups in accordance with specifications, and that there was good correlation between field observations and recorded data. Some minor discrepancies were observed but these followed no discernible pattern, and it has been concluded that no bias has been introduced in the overall condition results as a result of these minor discrepancies.

Appendix 1

Development of Asset Condition Composite Health Indices

An asset condition composite Health Index is a very useful tool for representing the overall health of a complex asset. Transmission assets are seldom characterized by a single subsystem with a single mode of degradation and failure. Rather, most assets are made up of multiple subsystems, and each subsystem is characterized by multiple modes of degradation and failure. Depending on the nature of the asset, there may be one dominant mode of failure, or there may be several independent failure modes. In some cases, an asset may be considered to have reached "end-of-life" (EOL) only when several subsystems have reached a state of deterioration that precludes continued service. The composite Health Index combines all of these factors using a multi-criteria assessment approach into a single indicator of the health/condition of the asset.

Individual condition indicators provide a basis for assessing specific condition information about an asset, and these indicators may reflect specific asset defects or the extent of one particular mode of asset deterioration. Networks uses condition indicators extensively, normally for station assets in the form of condition ratings ranging from CR1 through CR4 or CR5. A condition rating of CR1 generally represents "like-new" condition for a particular indicator, whereas the highest condition rating (CR4 or CR5) generally represents an EOL condition for a particular indicator, or a need for urgent attention.

For a typical asset class, a wide range of diagnostic tests and visual inspections are undertaken as part of the maintenance program or special-purpose Asset Condition Assessment (ACA) surveys. In some cases, a high condition rating (CR4 or CR5) value will represent a failure of a subsystem, which can be repaired through replacement of that subsystem, with no resultant impact on the serviceability of the overall asset. However, it should be recognized that generalized deterioration of many or all of the subsystems that make up an asset could also be a valid indication of the overall health of the asset. A composite Health Index captures generalized deterioration of asset sub-systems, as well as fatal deterioration of a dominant subsystem.

In developing a composite Health Indices for assets, it is very important to understand the functionality of the asset, and the manner in which the various subsystems work together to perform the main functions of the asset. With a clear understanding of asset functionality, the various condition ratings can be combined to create a composite "score" for the asset, and the continuum of asset scores can be subdivided into ranges of scores that represent differing degrees of asset health.

The critical objectives in the formulation of a composite Health Index are as follows:

- *Indicative:* the Index must provide a meaningful indication of the suitability of the asset for continued service or representative of the overall asset health

- *Objective:* the Index should, wherever possible, rely on objectively verifiable measures of asset condition as recognized in the industry, as opposed to subjective observations and/or condition risk factors. Probability of failure for certain condition levels is then based on engineering judgment and industry experience.

- *Simple:* the Index should be understandable and readily interpreted.

The critical process steps used to develop the condition based Health Indices are described below.

1) Determine Condition Factor Importance

Development of a condition Health Index requires an assessment of the relative degree of importance of the different condition factors in determining the health of the asset. Each condition factor must be assessed as falling into one of the categories shown in Table A1.1.

No impact	Indicator reflects defects or deterioration measures that have no impact on overall asset health
Contributing Factor	Indicator reflects defects or deterioration measures that range from low to high in importance, but typically in combination with other measures as part of a formulation of generalized deterioration
Combinatorial Factor	Indicator reflects a measure which does not represent asset condition in isolation, but is a critical component in a complex logical and/or mathematical formulation of asset health
Risk Factor	Indicator reflects risk factors known to presage poor health, but does not represent a direct measure of health
Dominant Factor	Indicator reflects the health of dominant subsystem that makes up the asset, and EOL based on this single factor represents EOL for the entire asset

Table A1.1 - Condition Factor Relative Degree of Importance

Through this screening process, many condition parameters may be eliminated from consideration as part of the asset Health Index.

2) Formulate the Condition Based Health Index

Using a multi-criteria analysis approach, combine the various factors into an idealized condition based Health Index. This involves grouping together the various factors, crafting the mathematical and/or logical formulations, and establishing the importance weightings of all the factors to allow combining them into a single Health Index or score.

3) Develop a Uniform Scoring System

Develop a quantified scoring system to appropriately represent the asset health consistent with the philosophical approach developed in step 2. In general, a uniform scoring system has been adopted through the following steps:

i) Convert the CR1-CR2-CR3-CR4 "deterioration" scores to health scores in the range 3-2-1-0 (3 =perfect health, 0=end-of-life), similar ratings for line assets are also converted in the same manner.

ii) Assign an importance weighting to each factor (1=modest importance, 2=intermediate importance, 3=high importance),

iii) Formulate a general deterioration index by calculating the maximum possible score by summing the multiples of the importance weighting and the maximum possible health score for each factor,

iv) Calculate the maximum possible score for data sets of individual assets. If this is less than 70% of score in iii), the particular asset is deemed to have insufficient data for calculating a valid Health Index.

v) For records with sufficient data, calculate actual score for the asset.

vi) Normalize the Health Index based on the maximum possible score (iv), so that a result of 100% is excellent health and 0% is very poor health.

vii) Apply any dominant factors as described in the Health Index formulation, e.g. divide by 2.

4) Establish Minimum Criteria Requirements

Establish a minimum quota of tests/observations needed for calculating a valid asset Health Index because it is not reasonable to expect that information will be available on every test criterion. In general, this minimum level is set to 70% of the maximum available score; in other words, test information must be available on criteria that make up 70% of the total maximum index.

Actual asset condition data is then analyzed to ascertain the extent to which valid scores may be calculated using the adopted Health Index. This "sanity check" is used to validate the recommended Health Index formulation and adjustments are made, as appropriate, to ensure the results reflect actual asset condition.

5) Establish Asset health Categories

Correlate the continuum of asset health scores into discrete categories of asset health. In general, five categories were deemed appropriate for the purpose of helping Networks programming investment and maintenance activities as shown in the table A1.2.

Condition	Description	Remaining Life (where supported)	Requirements
Very Good	Some aging or deterioration of a limited number of components	>20yrs	Normal inspection and maintenance
Good	Deterioration of some components	10-20yrs	Normal inspection and maintenance
Fair	Noticeable deterioration or serious deterioration of specific dominant components	5-10yrs	Increase diagnostic testing, component replacement or possible complete replacement needed before 5 years, depending on criticality
Poor	Widespread serious deterioration or significant deterioration of a dominant component	1-5yrs	Start planning process to replace, considering risk and consequences of failure
Very Poor	Extensive serious deterioration or serious deterioration of a dominant component	0–1 yr	At end-of-life, immediately assess risk; replace based on assessment

Table A1.2 – Categories of Asset Health

Converting the continuum of Health Indices into five discrete categories for a condition index requires fine-tuning of the health scoring system, since it is necessary that the relative degree of severity of the scores due to "dominant" factors and those due to generalized degradation match up at the boundaries between each category. This may require iteration of steps three and four to ensure that the resulting Health Index is rational and reasonably reflects field condition.

Appendix 2

EPRI Solutions

“Industry Best Practice Review for Hydro One”

Industry Best Practice Review for Hydro One

May 22, 2006

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INTRODUCTION

This report summarizes an EPRI Solutions' review of Industry Best Practices of Transmission Asset Condition Assessment (ACA) approaches used by leading utilities.

For each equipment group the review focuses on the advances in industry best practice, technologies and processes that have occurred in the last few years.

The information used in this report came from EPRI project literature, utility and commission websites and EPRI Solutions maintenance experience at the following list of utility companies in North America and internationally:

- Arizona Public Service
- Bonneville Power Administration
- Center Point Energy
- EDELCA – Venezuela
- Hawaiian Electric Company
- ICE – Costa Rica
- Long Island Power Authority
- Los Angeles Department of Water and Power
- National Grid Group
- Nebraska Public Power
- New York Power Authority
- Northeast Utilities
- Omaha Public Power
- Sacramento Municipal Utility District

PRIORITY 1 ASSETS

1. Transformers (Auto and Step-Down Transformers)

In the past few years, a number of transformers and transmission shunt reactors have failed abruptly without any external disturbances or alarms. Some of these failures were attributed to corrosive sulfur contamination of the insulating oil and other materials. A number of utilities in North and South America are screening their transformer populations for corrosive sulfur contamination. The recent failures have also triggered a review of the present testing specifications and the development of new testing methods for determining corrosive sulfur contamination in insulating oil.

Historically, utilities have used several different programs and types of calculations to produce normal load ratings and loadings beyond nameplate for the mix of their transformer fleet. Recognizing that these methodologies have changed over the years, leading utilities are re-evaluating their transformer loading performance. The present approach is an integration of current diagnostic testing and historic test data with an expert software system. The output is providing new transformer ratings according to loading analysis, confirming the maximum sustainable load for short-duration excursions, and determining the up-rating capability for each transformer based on the potential overhaul and/or upgrades that can be performed. The output also ranks selected transformers in terms of failure risk.

2. Gas Insulated Switchgear (GIS) Equipment

For the majority of utilities, GIS substations have or continue to exhibit some SF6 leakage. The level of leakage is dependent to some extent on quality control during erection, but problems have been found to occur after some years of service. The approach across utilities is to address this problem on a site-by-site basis, adjusting or replacing joints as necessary.

Many utilities practice precautionary switching in response to a low SF6 gas pressure alarms. Some utilities are evaluating the use of a rate of change of pressure alarm to manage their responses to gas alarms better.

The performance of grading capacitors on GIS circuit breakers in the energized open position has created a low confidence level. One practice is to open the adjacent disconnect switch, shortly after the breaker is open, to relieve the stress on capacitors.

Poor installation and assemble of GIS components, leading to early infant mortality of equipment is still an issue for US utilities. Where incidents have occurred, such as internal flashovers, the response by utilities is typically a modification of maintenance practices, a review of cleaning materials used and the installation of partial discharge monitoring equipment.

3. Oil Circuit Breakers

Recently, more utilities are exploring oil circuit breaker (OCB) oil analysis as a diagnostic tool. The process is neither overly complex nor does it require an outage. The package of tests includes:

- Dissolved Gas Analysis (DGA)
- Particle count and size
- Particle typing
- Oil quality
- Total metals

There are several **oil analysis approaches** taken by utilities:

- First, there are those utilities that have decided not to adopt oil analysis as a diagnostic tool because they are implementing an OCB replacement program over the next 5–10 years. They have undertaken risk assessment of future maintenance requirements for the remaining population and continue to implement any remaining internal inspection on a time-base approach.
- The second group includes those utilities that periodically test for moisture and acidity—typically every 4 years—and continue with contact assembly inspections on a periodic basis every 4–10 years and/or use triggers such as number of operations, number of fault interruptions, and I^2T (fault power monitoring).
- The third group continues with periodic contact assembly inspections on a periodic basis every 4–10 years and/or uses triggers such as number of operations, number of fault interruptions, and I^2T. These utilities have also just started oil analysis programs on a pilot basis on specific classes of OCBs.
- The fourth group has added oil analysis as a trigger for internal maintenance on specific classes of OCBs (e.g. 230kV) and continues with periodic maintenance and other triggers on the remaining population.
- The fifth group has abolished periodic internal inspections and proactively reviews all diagnostic data from oil analysis, infrared inspection, interrupter resistance measurement, mechanism motion analysis, and the number of operations/fault interruptions to determine when maintenance is next due.

Although oil analysis helps extend contact assembly inspections, many OCB failures have been traced to faulty lubricants and/or questionable lubrication practices. Regular mechanism maintenance is undertaken by most utilities every 2–6 years. This consists of lubrication, overall phase-resistance tests, and motion analysis. Some utilities have re-lubricated specific circuit breaker mechanisms with longer-life fluorosilicone grease and dry-film bonded lubricants, in part to extend their mechanism maintenance cycle. Exercising OCBs is also scheduled at least once a year.

4. Air Blast Circuit Breakers

A review of industry practices shows that utility practices and the manufacturers' recommendation are to recondition the pressurized head beakers every 15–25 years, depending on breaker type and its operating environment. In addition, normal maintenance, inspections, checks, and measurements are typically undertaken every 4–6 years. This work involves interrupter overhauls, pulling pins on crank boxes and replacing them, cleaning and replacing lubrication, and checking and resetting tolerances. Some utilities choose to undertake all work in-house, whilst others do so under the supervision of the manufacturer's

representative. A reduction in the manufacturers' technical capability is now severely impacting the choices and ability of asset owners to maintain and operate the pressurized head designs. One utility reports that for GE-ATBs major reconditioning work, contracted-in, requiring the replacement of tie rods, interrupter rebuild, gasket and seal replacement, and mechanism work takes a 6-man crew 6 weeks to complete and costs around $200,000.

Service advisories: Many utilities have faced challenges in processing this extra work according to GE. Difficulty in managing moisture in the high-pressure air system and poor lubrication programs are major contributors to mechanism problems. One practice to ensure a full complement of strategic spares is the sourcing of spare components from locations where circuit breakers have become redundant.

Many air blast circuit breakers (ABCBs) are approaching, or are at, their manufactures design lives. Together, with maintenance complexity and the lack of technical experience, both internally and externally, utilities are adopting strategies that require the replacement of their ABCB fleet.

5. HV/LV Switches

For many companies, the driver for a comprehensive review of disconnects tends to be triggered by the poor performance of one particular design.

There is an operational perception across a few utilities that disconnect and ground switch performances are skewed by poor reporting. As a large population of switches are manually operated, and as most defects are found during operation and immediately rectified, it is likely these defects are not correctly recorded.

The decision at a few utilities is to replace disconnects as part of a circuit-bay upgrade program, others have chosen a strategy of disconnect and ground switch reconditioning depending on the equipment type. A few utilities have had to modify their ground switches following a rating evaluation where a few designs had insufficient performance.

6. Strategic Spares Equipment

Many companies have invested the effort and resources to optimize strategic spares cover. This includes coordination between all stakeholders (suppliers and customers). The effort requires identifying a replacement strategy for every piece of equipment and priority circuits, setting up cross-functional reviews to identify gaps in equipment spares cover, and developing recovery strategies.

Some manufacturers are offering limited warranties (cables: insulation shrinkage) and free upgrades to the latest equipment, variant on replenishment. In some instances, utilities that have contracted with suppliers for 40-year warranties so hold no strategic spares for specific equipment. Unfortunately, incidents of poor installation practices have had an impact on this approach.

Utilities that have considered limiting the number of new designs introduced have found this has implications for procurement from the potential reduction in competition or need for long-term agreements. There is also the potential increased vulnerability to an equipment-type fault.

One approach to maintenance spares that works well is to issue two kits, one containing all consumables for the job (seals, gaskets, etc.), and the other containing more expensive parts possibly requiring replacement. This approach allows the central stores to order and make up the kits and receive back unused more expensive parts, providing clearer spare quality control, cost recording, and eliminating “squirrel stores.”

7. Protection and Control

For the majority of utilities in North America and internationally, the maintenance intervals for protection equipment are time based; however, intervals have been lengthened and work content has been reduced from historic level.

Performance measures are in place to measure the outcome of protection maintenance work and its alignment with corporate objectives. Some utilities report a lower protection performance for the last 4 years than the expected forecast. This is mainly due to relay failures, high-resistance faults, and human errors. Many utilities are experiencing a definite problem with the competency level of the protection skills. Staff formal certification programs across companies have had some teething problems. The advent of integrated technologies in the light current areas of protection and control has presented utilities with an opportunity to encourage the cross-training of resources.

Increased demands on the power system have necessitated the review of protection setting philosophies for affected utilities. High tower footing resistance is another concern for some utilities.

Many utilities have adopted a program to expand their installation of digital fault recorders (DFRs). This has enhanced the speed and quality of investigations into the power network and protection performance dramatically.

Refurbishment of protection equipment using a score system to evaluate and prioritize refurbishment is a methodology applied in North America, UK, and Africa. Due to changes in their power networks and the application of new technology, utilities are continuously reviewing their protection scheme settings philosophy.

One of the large challenges facing protection maintenance is the effect on load growth expansion. This has caused the allocation of protection maintenance resources to support commissioning activities and constrained the availability of maintenance outages.

8. Phase Conductor

Recently, a few US utilities have been investing field time into evaluation of Electro-Magnetic Acoustical Transducer (EMAT) technology for detection of broken strands internal to conductors and attachments. The technology is applied on an energized line using bare-hand techniques and is able to identify conditions in which several broken conductor strands exist within the region of attachment to the support structure. The EMAT unit generates microscale displacement waves that are propogated through the conductor under investigation. By analyzing the conductor response to the combined torsional and longitudinal excitation, the EMAT unit will report the conductor condition. Advantages of EMAT are:

- Much more amenable to inspections of parts with complex geometries than conventional transducers
- Able to overcome many of the common problems encountered with traditional ultrasonic techniques, in addition to being non-contact
- Works at high temperatures and passes through various coatings while scanning at high speeds
- Less prone to operator error and produces a more repeatable variety of ultrasonic wave.

9. Wood Pole Structures

Utility commissioners are increasingly involved in agreeing with wood pole inspection programs and monitoring a utility to ensure its performance remains compliant. This has been common practice for a number of years in California and began affecting investor-owned Florida utilities in March 2006.

The approach to wood pole inspection varies due to a number of justifiable factors. One factor that is common to all utilities is the high integrity of line staff. The challenge for most companies appears to be demonstrating adequate control, overview, and audit of their inspection programs.

Some utilities in North America and internationally are taking the lead in identifying initiatives, such as disaster preparedness, recovery programs, and increasing collaborations with local governments.

10. Underground Cables

The many different types of cable complicate utility cable replacement programs. Work priorities are normally based on environmental, safety legislation, and the rate of deterioration.

For utilities, the issues of reinforcing tape corrosion, lead sheath fatigue from intercrystalline cracking, and oversheath damage due to poor backfill practices have forced some to undertake the replacement of cable sections or change their operating practices. One approach to reduce the number reinforcing tape breakages was to reduce oil section pressure by installing additional stop joints.

Modern sheath voltage limiters have prompted some utilities to review their circuit bonding schemes, resulting in a significant reduction in the number of bonding link boxes and future maintenance costs.

Where insulation thermal aging is not significant, some utilities are refurbishing their cable auxiliary systems. This work has lead to a significant reduction in oil leaks and includes:

- The installation of cable leak detectors in joint bays and the reinforcing of the joint-to-cable-end plumbs
- The installation of pressure transducers for detecting oil pressure drop

Some of the areas that utilities are looking at to improve the cable performance include:

- Temperature monitoring using fiber-optics for real-time rating
- Improved thermal backfill

11. Rights-of-Way

A 6-month transmission Rights-of-Way (ROW) visual aerial inspection is common in the US. Driving and foot patrols vary from 12–36 months. Typically, maintenance is undertaken on a 4-year cycle and consists of tree trimming, herbicide, and bush hogging.

US regulating bodies have already begun asking for information regarding ROW maintenance. It is expected that commissioners will either issue guidance on ROW maintenance (as is done in California) or require individual utilities to present a program and demonstrate compliance with the defined program. Although many utilities would consider extending the ROW program interval, it is seen as politically inexpedient following the August 2003 blackout. Many companies are convinced that their transmission programs are satisfactory, and a few consider sub-transmission in many ways more important.

ROW information is provided on many utility websites. Guidance is given on minimum foot radius around the base of each transmission pole or from a 4-leg transmission tower and anchors. Encroachments are normally forbidden under or within 15-feet of any power line conductor and are not to exceed 12-feet in height. Within the ROW, some utilities will allow parking lots, grading, excavation, and the changing of drainage patterns, provided they comply with the utilities' requirements. Typical corridor widths, unless otherwise specified in the ROW agreements are:

- 100kV, minimum 68-foot
- 230kV, minimum 150-foot
- 525kV, minimum 200-foot

PRIORITY 2 ASSETS

1. High Pressure Air Systems

Utilities with central air systems find they generate a large number of defects and corrective work. In the Northeast US, some systems are more than 40 years old. In the UK, many designs with a history of poor performance have been replaced with modern air boards and compressors. One driver for replacement is the relative cheap cost of modern equipment and superior technology. Some utilities have undertaken condition assessments of air systems as part of substation security projects. The replacement of air systems is the preferred option to refurbishment. Utilities that have implemented an appropriate level of air system remedial work have recorded a significant improvement in their system performance.

2. SF6 Circuit Breakers

For most utilities in North America and internationally, their fleet of SF6 circuit breakers have been in service for almost 30 years and a large population is around 20 years old, well short of its anticipated life.

One factor influencing the remaining life of SF6 breakers is their operating duty. Many beakers used for switching reactors are approaching or exceeding their design operating life due to frequent switching. This has necessitated review of their lifetime management strategies.

Gas pressure alarms remain a significant operational source of fault reports, and utilities are attempting to address this by closer attention to site-inspection gas-level recording or by the application of continuous monitoring systems.

Utilities continue to review their maintenance regime for SF6 breakers, focusing more on condition monitoring and inspection. Experience has shown that periodic interrupter inspections at 12-year intervals is generally inappropriate and that maintenance targeted on the basis of operating duty and/or operating experience is more valuable. Some utilities are negotiating with manufacturers to consider the reconditioning of mechanisms, whilst others are considering employing a dedicated refurbishment facility, using “traveler” units to replace those units removed.

3. Metalclad Switchgear

Most metal clad circuit breakers are periodically overhauled between 4–8 years in North America. Many utilities are moving towards a diagnostic plan approach, by reviewing familiar measurements before undertaking a full overhaul. Measurements include annual thermography findings, number of breaker operations, functional checks, and visual inspection, including moisture in any form from building leaks or condensation.

4. Power Line Carrier

For most utilities, their current available records are inadequate to ascertain whether condition-based or reliability-centered maintenance provides an optimally cost-effective approach to power line carrier maintenance. The common strategy for maintenance is a time-based philosophy applied to each essential component of the power line carrier-link. The require maintenance interval of each component varies, between annual inspections, normally non-intrusive work to a more comprehensive six-year measurement of performance characteristics.

Some utilities are reviewing their power line carrier systems for bottlenecks, resulting in poor protection system signaling performance and the need for diversity using other privately owned systems. Spares are an issue on some obsolete equipment, and one strategy is to maintain refurbished units for parts to ensure acceptable return to service times following failure.

5. High Voltage Instrument Transformers

Utility testing of instrument transformers depends largely on the experience of each manufacturer's product line in service. Although manufacturer's instructions usually state that such testing is not required experience in service indicates that periodic testing is required. If there has been no history of problems in service, insulation power factor testing and oil analysis, where practicable, typically start after about 10 years in service and repeat every 5–10 years for some US utilities. Other utilities only trigger power factor testing from a suspect oil analysis. The lower voltage class CTs such as 138-kV and below are seldom tested in service unless there has been a record of problems on a specific brand. Commercial on-line monitoring products monitoring leakage current and hydrogen in oil are utilized by utilities on an as needed basis. Some utilities in the UK have initiated programs to replace whole families of suspect CT's following investigation into catastrophic failures

6. Revenue Metering

There appears to be no significant issues with revenue metering equipment across utilities. Failures are noticed early due to the continuous monitoring of their data output. Due to this high visibility (continuous data recording), and the expectation of high metering performance to satisfy compliance codes, some utilities expect to replace their revenue metering equipment before 20 years of operation.

7. Station Insulators

The condition of anchor bolts on tension insulator sets, specifically at substations located in contaminated environments, is being observed by UK utilities. Concern about the performance of LAPP strain insulators has some North American utilities programming their replacement. The practice of insulator greasing to limit the impact of contamination has been stopped at many utilities. They now favor triggering the washing of insulators based on contamination information collected at monitoring sites. A recent event in South Africa proves this approach is vulnerable where washing is subsequently delayed.

8. Station Cables and Potheads

Compared to circuit cables, the knowledge of the condition of substation cables is generally poor across utilities. For a large amount of the population only on-site maintenance records exist, reports in the computerized maintenance management systems on condition are very poor. For the past couple of years a number of utility initiatives have been underway to update the technical database and better establish the condition of substation cables and potheads. Maintenance of cables is dependant on the cable type. For cross-bonded cables, routine cable sheath tests and oil pressure checks are common practices. Some pothead types have experience signs of ferrule pull out, but these problems are very rare.

9. Batteries and Chargers

For many utilities, overall battery status typically relates to criteria such as the batteries capacity compared to its manufacturer's rating, current design requirements, ability to hold charge, and its level of service life.

Utilities continue to look at the case for alternatives to substation batteries. One driver is the consideration of alternatives for batteries in remote areas, where proper maintenance is difficult or costly. However, a recent survey by EPRI found the life-cycle cost of lead-acid substation batteries are extremely inexpensive, and matching them on cost—even on life-cycle cost—is a difficult task, especially when some utilities are satisfied not to perform any maintenance on them at all.

10. Station Grounding Systems

The type of tests performed as routine preventative maintenance and their frequency remain decisions of individual utilities based on experience with their systems. In addition to the routine site inspection, a large portion of utilities only tests their grounding system when trouble is indicated. Theft of ground conductors is a major issue for utilities. South Africa has significantly reduced theft by working closely with bulk metal purchasers. Most utilities perform condition assessment on ground systems when a change to the site has, or is due to occur.

11. Capacitor Banks

Due to their electrical characteristics, capacitors are susceptible to conditions that can reduce the expected life of the individual capacitor. The practice of some leading North American utilities is to protect the capacitor "cans" with an individual fuse.

Common utility practice is to visually locate and then test any capacitor found with a blow fuse. Maintenance triggers vary, from number of bank operations, system fault events, or an inspection task. During maintenance, any capacitor suspected to be damaged (i.e., bulged tank, partial shorting, per test results, etc.) is replaced.

12. Station Buildings

Some utilities have tried surveying civil inspections on a 5-year interval; in practice, surveys were given a low priority and were deferred.

Rather than undertake routine inspection, many utilities engage in regular programs to review common aspects of buildings. Buildings are categorized by age. Assessment programs may include flat roof replacement, window and air conditioner upgrades, painting, concrete and surface repair, and restroom facility and mess area updates. Programs are planned a couple of years ahead. In some cases, work is held-off and only called upon to manage budget under spends.

13. Fences

Security in the US and internationally consists of physical perimeter fences fitted with tampering monitoring, locked equipment cabinets, electric gates, and door sensors. Electric fences are common in the UK and Africa, but only South Africa operates fences in the fatal mode.

The UK companies have removed fence signage from many of their substations, preferring the facility to remain anonymous. The practice in the US and UK is to visually inspect the substation fence monthly for interference.

14. Drainage and Geotechnical

The life of a drainage system is affected by the original workmanship, maintenance, and overstressing with abnormally heavy loads. Utilities report drainage lives can span 25–80 years. Drains are prone to collapse, problems due to ground movement, and blockage, all of which can substantially reduce their life.

A number of US utilities only note the effectiveness of drains following a storm. European environmental standards have forced utilities there to enhance their drainage systems. Utilities routinely inspect sites for standing water and separator discharge to ensure drainage integrity.

NGC has prioritized several hundred substations by the volume of oil on site, local soil type, and the vicinity of local aquifers.

15. Fire and Security Systems

In the US, a few utilities are reevaluating their substation fire risks. West coast utilities appear more active in this area. However, some US companies have no concern due to the spatial separation between their transformers.

Leading utilities perform a monthly system visual inspection, two-monthly fire pump operational checks, annual fire panel checks, and two-yearly functional and system performance checks (deluge valve operation).

Oil volume is the metric used by most utilities to determine the National Fire Protection Association (NFPA) recommended separation distance, specifically NFPA 850: Recommended

Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations.

Many US utilities have transformer and oil filled reactor configurations that are non-compliant to NFPA codes. Their insurance carriers are aware of this situation but neither party appears active in finding a solution. Many report they have a challenge retrofitting firewalls to existing installations due to electrical conductor clearance and to a lesser degree cooling.

Fire project upgrades are normally complete in 18–36 months, based on complexity. Typically, US switchyards have a fire barrier wall between transformers and adjacent buildings. Most have automatic deluge systems. Foam and CO_2 extinguishing systems are very rare. For substations located in rural areas, the use of passive fire protection in the form of spatial separation, 150–300 feet is common.

An Enterprise Security Initiative is the approach adopted by many US utilities, evaluating physical and cyber vulnerabilities. Penetration tests to determine IT system vulnerability are now common. UK and US utilities have removed system layout maps from their websites.

PRIORITY 3 ASSETS

1. Protection System Monitoring

Although protection system monitoring is common across utilities, technological advances mean utilities remain in the proving stage for integrated system monitoring equipment. The interval for testing sequence of event recorders and digital fault recorders is 3–6 years. Quality of supply, on-line system stability, and dynamic system monitoring devices at some utilities are maintained under service level agreements. These support agreements are becoming more popular in the UK and South America.

2. Station Buses

One cause of disconnect switch binding has been attributed to the movement of bus bars on the outer post insulator. This has occurred in the UK and North America. The issue is typically found on sites built on a bed of pulverized fuel ash. Some companies in North America undertake Corona inspection of buses on a six-year cycle.

3. Station Surge Protection

Surge arrester field tests are not tests of the complete protective characteristics of a surge arrester. This is due to the voltage and current magnitudes necessary to replicate an event and the limitations of available field test equipment. Instead, they are tests of the mechanical condition and insulating quantities of an arrester. As an arrestor spends most of its life as an insulator; verification of these quantities is essential.

Many US utilities operate effective assessment programs. They undertake monthly visual inspection to check for loose hardware, cracked porcelain, and cement. The surface is checked for contamination and signs of flash over. These checks are supported by an annual thermography survey. Routine leakage current measurement is performed on insulated-base type arresters where the ground lead is accessible. Some arresters have a grounded-base with no accessible ground lead, making this test impractical. Some US companies perform a power frequency dielectric-loss test with Doble test equipment every 5 years.

4. AC/DC Service Equipment

Recognizing the varying configuration of AC and DC substation services, a number of utilities in UK, South America, and Africa are undertaking surveys. For each substation, the focus is to document the number of incoming supplies, availability of standby generators, and the provision for automatic change over. The conditions of these components are being scored together with battery systems and central air system schemes. The driver behind these assessments is to ensure substation black start capability.

5. HV/LV Station Structures

Utilities trigger concrete structural repairs from routine site inspections. Deterioration is found to vary with the quality of the original workmanship and materials. Cracking of concrete from an

alkali silica reaction is reported by many utilities normally around bolts. Routine site inspections trigger the filling of cracks to prevent further deterioration from “frost-jacking.” Carbonation is the most common form of deterioration that affects concrete structures, but successful repair methods have been applied in the UK. Modern concrete specifications virtually eliminate this problem. Where chloride accelerators were used in the original mix or are absorbed from salt spray, deterioration is difficult to combat. Utilities are identifying these structures, typically pre 1970’s, for replacement. One challenge faced by utilities is evaluating the success of repairs. Repairs take time to evaluate with certainty, during which new techniques can make past repair practices redundant.

Most steel substation structures either are galvanized or have zinc spray protection. Routine site inspections record any visible rusting. The treatment is spot painting following a thorough preparation. Most visual inspection programs focus on areas where water can collect, especially the concrete-to-steel junctions where a steel member is encased in concrete at its base.

Some utilities have planning models working with a 55–80-year asset live range, with poor concrete types at the lower range and steel at the higher.

6. Heating, Ventilation and Air Condition

Some ventilation schemes associated with long cable tunnels are maintained by service level agreements with the original manufacturer. Many of these schemes are integrated with a fire protection system for smoke control. Heating and air conditioning performance is recorded during routine substation walkdowns.

7. Boilers and Pressure Vessels

The pressure reducing and relief valves fitted to boilers and pressure vessels are tested in the UK on a 6-year cycle. NGC has developed its own high-pressure test rig. This rig is only operated by authorized personnel to test reducing and relief valves.

8. Oil Containment Systems

The monthly inspection of oily water separators, site drain discharge, and berms are part of the routine site inspection program for many utilities. Programs to assess the effectiveness of ground grading, directional curbing, ditches, earthen and concrete pits, liners, and crushed stone areas tend to be one-time reviews than common routine inspections. Many US utilities are engaged in the improvement of environmental protection measures in the following areas:

- Drainage upgrade in the form of sloping away the path of potential oil spills from buildings and adjacent transformers.
- Curb areas and pits around transformers are being constructed, and a layer of uniformly graded stones is being installed as a means to minimizing ground fires.
- Oil separation systems are being upgraded at sites that have a significant number of fire suppression systems, typically switchyards and DC converter stations.

The approach in the UK is to rank sites by oil volume, soil type, position to aquifers, and surface water, undertake soil sampling, remove contaminated soil, and upgrade drainage systems.

9. Oil and Fuel Handling Systems

Increasingly, environment acts are giving environment agencies the power to serve notices to utilities to carry out specified measures to prevent operations/activities giving rise to a risk of pollution. One of the responses from utilities to minimize the pollution risks from oil-containing plant in substations is the decommissioning of fixed oil-handling systems.

Fuel, insulating oil and lubricating oil-handling systems are found in generation switchyards due to their close proximity to the generating station. Although very uncommon, there have been incidents where the incorrect fluid was used in filling a transformer.

10. Microwave Radio Systems

Microwave solid-state technology remains a strong backbone for utility communications around the world. Dual antennas have been used to compensate for any path movement or losses. Utilities engineers report that once the path is set up and the system is running correctly with routine condition maintenance, the integrity of these systems is good.

11. Fiber Optics

To achieve the maximum flexibility of the fiber network design in substations some UK utilities are utilizing a star-configured infrastructure from the central location to each satellite location (bay) within the substation. Optical fiber systems are tested in the UK to the general requirements of BS 7718. For US utilities, the planning and usage of fiber cable is relate to the experience gained from the reliability of fiber systems as systems are migrated from current analog to digital communication systems. BPA has settled for cable sizes of either 36 or 72 for its looped communication systems.

12. Metallic Cable

Pilot circuits found at utilities in the US and UK are multicore or multipair cables. They are used for alarm, protection, telecommunication, or control purposes. To protect the substation supplies from experiencing damage-induced voltages that the pilot circuit can experience, barrier equipment is used at the interface between the substation wiring and the pilot circuits. Routing testing in the UK consists of a 2kV AC test between the two pilot connects, and a 15kV barrier performance test.

13. Site Entrance Protection Systems

Some northeastern US utilities have a dedicated armed security force managing all aspects of site security. There is a tendency towards outsourcing video surveillance monitoring. Electric gates have been installed at the majority of UK transmission sites. Electronic keys and a tiered level of authorized access are common across utilities. These systems are maintained by service-level agreements with manufacturers. Routine station inspections monitor the systems for anomalies.

14. Teleprotection Tone Equipment

Typically, protection signaling is the key component affecting the performance of control and protection equipment. Modern teleprotection is being installed by all utilities. The current policy is to combine intertripping and signaling functions in one product. One favourite is ABB's NSD70C, a more recent development and effectively supersedes the NSD70 and NSD72. It does rely on user settings to define its operating parameters. The need to specify the settings correctly for each function is required to ensure that the protection system performance is optimized. Testing is typically undertaken in-house, and one requirement is an operational functional check.

15. Line Steel Structures

Although many towers have been painted during their lives, it is believed that not all were painted before loss of galvanization has occurred.

During routine inspection, hand-held data inputting devices have been used to input tower steelwork condition data. This has succeeded in collecting tower condition data in limited and varying degrees. Condition assessment covering foundations and tower steel work ranks towers from: insignificant signs of steelwork corrosion - tower painting within 'X' years - major steel work treatment - or member replacement within 'X' years - to action required to maintain structure integrity.

Some US utilities repaint or recoat when corrosion exceeds 15% of the surface area of the steel pole. One recommendation to extend tower live well beyond 100 years is to paint new towers immediately in order to protect the galvanizing, followed up with a good maintenance painting strategy.

Another suggestion is the use of new cross-arm designs that unbolt individually, allowing easier replacement.

Some US utilities plan to complete ground resistance measurement of their entire steel tower population over a 20-year cycle.

16. Line Shieldwire and Hardware

As part of the routine visual patrol, US utilities inspect the ground wires at a number of positions for damage associated with the wire span, dead-end assemblies, wire bonding on compression anchor clamps and damage to the bonding on suspension clamps. As with the phase conductor assessment, Electro-Magnetic Acoustical Transducer (EMAT) technology is being considered for the assessment of the shield wire to detect broken strands internal to the wire and attachments.

17. Line Insulators and Hardware

Insulators can be defective with no visible signs of the defect. The reason these defects cannot be seen is that they occur as a crack through the cement under the metal cap. This creates a short between the cap and pin. Utilities replace defective insulators or full strings using live- or

dead-line techniques. One common method used is a portable, megohm-meter type instrument which allows linemen to "meg" insulators on lines up to 500-kV with the line energized or de-energized.

School Energy Coalition (SEC) INTERROGATORY #11 List 1

Interrogatory

Ref: [Ex. a/11/5] With respect to Accelerated Cost Recovery:

a. Please provide any studies or other analyses showing that there is a material impact on the financing capability or other financial criteria for the Applicant if CWIP is not allowed in rate base for Bruce to Milton.

b. P. 6. Please show the full calculations of the figures of $753 million and $695 million. Please confirm that the lower figure assumes that there is no time value of money for the customers who pay the cost of capital earlier. Please confirm that if an identical project is modeled using each of the two methods, and the stream of payments is converted to a net present value, the model with traditional CWIP treatment will have the lower NPV cost because of the lower effective AFUDC rate. Please quantify that difference for the Bruce to Milton project.

c. P. 10. Please advise what approval or other decision is being sought from the Board in this proceeding with respect to the proposal to apply accelerated cost recovery of CWIP to two upcoming projects through a request for a rate rider order at their section 92 hearings.

Response

a. Hydro One does not have any studies or other analysis; however, if CWIP is allowed in rate base for Bruce to Milton it would be generally supportive of Hydro One's credit quality in that it would improve credit ratios from what they would otherwise be until Bruce to Milton comes into service. For example, interest coverage ratios with the CWIP in ratebase approach would be higher than they otherwise would be, i.e., if Bruce to Milton was not added into rate base until it was declared in service. It also enhances the certainty of cost recovery which is key to credit quality.

b. Please see Exhibit I, Tab 1, Schedule 122, Attachments 1 and 2 for the cost build-up underpinning the $695M and $754M project costs.

It is confirmed that the lower amount of $695M does not include a time-value-of-money component. Please see Exhibit I, Tab 1, Schedule 122 for the NPV comparison. The results show that with CWIP in ratebase, the lifetime NPV revenue requirement is slightly less than under the standard approach, although the difference is not large ($0.5M). Please see Exhibit I, Tab 2, Schedule 85, part b) for what is driving this result.

c. There is no approval being requested in this application for CWIP in ratebase treatment for any projects other than Bruce to Milton.

School Energy Coalition (SEC) INTERROGATORY #12 List 1

Interrogatory

Ref: [Ex. A/12/4] With respect to Investment Plan Development:

a. P. 12. Please provide copies of all SIAs on projects being added to rate base in the test period.

b. For each project in excess of $20 million total cost, please provide a list of which of the steps in this exhibit have taken place or are expected to take place, and which documents referred to in this exhibit have been prepared or received for this project.

c. P. 20. Please provide a copy of the prioritized project list for each year from 2007 to 2012.

Response

a. Please see below Table 1 for a listing of the projects identified in Exhibit D1, Tab 3, Schedule 3, Tables 2 thru 12 with in-service in the test years and their corresponding SIA identification number. The SIA can be obtained by referencing the SIA identification number at the following websites:

Website Link #1:
http://www.ieso.ca/imoweb/connAssess/caa_StatusSummary-2.asp

Website Link #2:
http://www.ieso.ca/imoweb/connAssess/caa_SmallPrj_StatusSummary.asp

Table 1: SIA Details for Development Capital Projects

Item #	Project Description	SIA ID #	Website Reference
D1	New 500 kV Bruce to Milton Double Circuit Transmission Line	2006-250	Link #1
D2	Northeast Transmission Reinforcement: Install SVC's at Porcupine TS & Kirkland Lake TS	2006-223	Link #1
D3	Nanticoke TS - Install 500 kV, 350 MVar Static Var Compensator	2008-346	Link #1
D4	Detweiler TS – Install 230 kV, 350 MVar Static Var Compensator		
D5	Essa TS – Install 250 MVar Shunt Capacitor Bank	2008-352	Link #1

Item #	Project Description	SIA ID #	Website Reference
D6	Porcupine TS - Install two100 MVar Shunt Capacitor Banks		
D7	Hanmer TS - Install 149 MVar Shunt Capacitor Bank		
D9	Woodstock Area Transmission Reinforcement	2006-253	Link #1
D10	Rebuild Burlington TS 115kV Switchyard	2006-EX299	Link #2
D11	Toronto Area Station Upgrades for Short Circuit Capability: Rebuild Hearn SS	Not yet requested	
D12	Toronto Area Station Upgrades for Short Circuit Capability: Leaside TS Equipment Uprate	2010-EX479	Link #2
D16	Commerce Way TS: Build new TS and Line Connection (formerly Woodstock East TS)	2008-298	Link #1
D17	Kirkland Lake TS: Reconnect Idle K4 Line	2008-312	Link #1
D18	South Halton Tremaine TS: Build New Transformer Station	Not yet requested	
D24	Long Lac TS: Replace End-of-Life 115-44 kV Transformers	2007-EX360	Link #2
D25	North Bay TS: Upgrade to a 115-44 kV Transformer Station	2009-EX426	Link #2
D26	Barwick TS: Build new Transformer Station	2010-378	Link #1
D27	Duart TS: Build new Transformer Station and Line Connection (formerly Rodney TS)	2007-260	Link #1
D28	500 MW Renewables III RFP (Talbot Wind Farm)	***Note 1***	
D29	350 MW Peaking Generation in Northern York Region	***Note 1***	
D30	Chatham Wind Generation Connection (260MW)	***Note 1***	
D31	Lower Mattagami Generation Connections	***Note 1***	
D37	In-Line Circuit Breakers #1	***Note 2***	
D38	In-Line Circuit Breakers #2	***Note 2***	

Note 1: The request for an IESO SIA is from the generator proponent not Hydro One.
Note 2: Site specific project details have yet to be developed for this project and hence a request for an IESO SIA has not been initiated.

b. Please see below Table 2 for a listing of the projects identified in Exhibit D1, Tab 3, Schedule 3, Tables 2 thru 12 in excess of $20 million total net cost and their corresponding project stage as per Exhibit A, Tab 12, Schedule 4, Figure 3.

Table 2: Planning Process Details for Development Capital Projects

Item #	Project Description	Planning Stage #
D1	New 500 kV Bruce to Milton Double Circuit Transmission Line	13
D2	Northeast Transmission Reinforcement: Install SVC's at Porcupine TS & Kirkland Lake TS	13
D3	Nanticoke TS - Install 500 kV, 350 MVar Static Var Compensator	13
D4	Detweiler TS – Install 230 kV, 350 MVar Static Var Compensator	13
D9	Woodstock Area Transmission Reinforcement	13
D10	Rebuild Burlington TS 115kV Switchyard	13
D11	Toronto Area Station Upgrades for Short Circuit Capability: Rebuild Hearn SS	9
D12	Toronto Area Station Upgrades for Short Circuit Capability: Leaside TS Equipment Uprate	9
D16	Commerce Way TS: Build new TS and Line Connection (formerly Woodstock East TS)	11
D25	North Bay TS: Upgrade to a 115-44 kV Transformer Station	9
D27	Duart TS: Build new Transformer Station and Line Connection (formerly Rodney TS)	13
D37	In-Line Circuit Breakers #1	1
D38	In-Line Circuit Breakers #2	1

c.

Operations Capital Prioritized Project

2007 Projects	2008 Projects
OGCC Historical Information Management	OGCC Historical Information Management
On Line Dynamic Transformer Ratings	On-Line Dynamic Transformer Ratings
NMS Alarm System Enhancements	NMS Alarm System Enhancements
Phone System Enhancements	Phone System Enhancements
On-Line Dynamic Cable Rating	Enhanced Breaker Monitoring
Operating Facilities Sustainment	On-line Dynamic Cable Rating Calculation
Operating Facilities Sustainment - MFA	Tx Operating Facilities Sustainment
Enhanced On-line Short Circuit Monitoring	Enhanced On-line Short Circuit Monitoring
Provide NMS Consoles at Trinity	Provide NMS Consoles at Trinity
Expanded Command Sequence Switching	Expanded Command Sequence Switching
NERC Cyber Security Compliance	NMS in Field Locations with Control
UWPC System Replacement & Enhancements	UWPC System Replacement & Enhancements
NOMS Replacement & Enhancements	NOMS Replacement & Enhancements
Geospatial Information Integration for CR	Geospatial Information Integration for CR
Operating Security Limits in NMS Study Mode	On-Line GIC Calculation

Operations Capital Prioritized Project

Use of Protection Data for RTAM	Operating Security Limits in NMS Study Mode
Future Enhancements of Apps	Future Enhancements of Apps
Critical Alarm Unbundling	Utilize Data From Phasor Measurement Units
2007 Projects	**2008 Projects**
Enhanced RT Data Service to Customers	Critical Alarm Unbundling
Distance to Fault Location	Enhanced RT Data Service to Customers
Market Rules Telemetry Compliance	Distance to Fault Location
Telecommunication Performance Improvement	Telecommunication Performance Improvement
Underground Cable Monitoring Infrastructure	Underground Cable Monitoring Infrastructure
Telemetry Expansion	Telemetry Expansion
	Grid Control Network Sustainment
	Hub Sites EOL Replacement & Capacity Expansion

2009 Project Description	**2010 Project Description**
OGCC Historical Information Management - Transmission	OGCC Historical Information Management - Transmission
Tx Operating Facilities Sustainment	Dynamic Transformer Ratings (Kinetrics)
Operations Support Tools (NOMS / UWPC / EL Replacement)	Tx Operating Facilities Sustainment
ICCP Data and Customer Enabled Hold-offs	Operations Support Tools (NOMS / UWPC / EL Replacement)
NMS Enhancements	ICCP Data and Customer Enabled Hold-offs
Critical Alarm Unbundling	NMS Enhancements
Enhanced RT Data Service to Customers	Network Ops Buildings Sustainment (Transmission)
Distance to Fault Location	Critical Alarm Unbundling
Weather Station Replacement	Enhanced RT Data Service to Customers
Telecommunication Performance Improvement	Distance to Fault Location
Underground Cable Monitoring Infrastructure	Weather Station Replacement
Telemetry Expansion	Telecommunication Performance Improvement
Grid Control Network Sustainment	Underground Cable Monitoring Infrastructure
Hub Sites EOL Replacement & Capacity Expansion	Telemetry Expansion
WAN Project	Grid Control Network Sustainment
	Hub Sites EOL Replacement & Capacity Expansion
	WAN Project

1

School Energy Coalition (SEC) INTERROGATORY #13 List 1

Interrogatory

Ref: [Ex. A/13/1, p. 15]

Please describe in full the calculation of "transmission unit cost", and show the derivation of the figure 10.1%. Please describe how this metric is used in measuring productivity, and how it factors into planning and implementation decisions.

Response

Please refer to Exhibit I, Tab 1, Schedule 3.

School Energy Coalition (SEC) INTERROGATORY #14 List 1

Interrogatory

Ref: [Ex. A/14/1] With respect to the summary of Cost Efficiencies and Productivity

a. P. 2. Please describe "AirStair".

b. P. 2. Please provide any evidence in the possession of the Applicant supporting the statement that there is a "worldwide scarcity of core skills in the electricity industry".

c. P. 3. Please describe the NMS enhancement project in more detail, and provide the costs and expected dollar benefits of the project.

d. P. 3. Please describe the Distance to Fault project in more detail, and provide the costs and expected dollar benefits of the project.

e. P. 4. Please provide any plan, business case, or similar document relating to the Strategic Sourcing initiative, and provide all incremental costs and dollar benefits associated with the initiative.

f. P. 7. Please quantify in dollar terms the understatement of the savings that results from the method the Applicant uses to calculate incremental savings.

g. P. 9. Please confirm that there was also a change in the 100% level of the bands in the agreement. Please provide a table showing, for each band, the old 100% level, the new 100% level, the old salary range, and the new salary range. Please provide a copy of the 'renewed collective agreement". Please quantify the dollar impact in the test period of the changes in salary bands and ranges in the renewed collective agreement.

h. P. 9. Please provide the text of any "constraints" in any labour agreement affecting the ability to engage contractors.

i. P. 11. Please provide the planning and/or approval document relating to the employee engagement program. Please provide the latest internal report on the costs and results of the program.

Response

a. For AirStair information please refer to Exhibit I, Tab 2, Schedule 31, part a).

b. Numerous articles have been written on this topic, examples of which can be found in Attachment 1 for your information.

c. For the NMS Enhancement Project please refer to Exhibit I, Tab 2, Schedule 33.

d. Distance to Fault Project.
High voltage transmission circuits are exposed to transient, intermittent, and permanent faults. Transient faults self clear and the affected circuit is restored after a short interruption. Permanent and intermittent faults, on the other hand, cannot be resolved until the fault location is determined and the failed equipment is identified and fixed. Often, in particular on long remote lines, a significant amount of time and resources are spent on searching for the fault location. Knowing the fault location on the circuit before the crew is dispatched will reduce the time and the cost of restoring the circuit. Customer supply reliability will be improved due to faster restoration times. The environment will benefit from the reduction in carbon emissions from the reduced use of helicopters or vehicles and there is a safety benefit to staff from reduced exposure to travelling risks. Many transmission faults occur in poor weather conditions.

This project is upgrading the protection and monitoring equipment at the terminal stations of transmission lines to allow the fault location and nature of the fault (e.g. how many of the three phase conductors are affected) to be measured accurately and transmitted in real time to the Ontario Grid Control Centre. From there, it will be used to dispatch crews to the fault location.

The project will proceed in multiple phases to cover more and more of the transmission circuits. Priority is being given to circuits with the highest outage rates and longest distances (and hence travel times).

The first phase will implement these facilities at 13 stations in northern Ontario at a cost of $1.6M. The ongoing maintenance costs are expected to be $45k per year. The annual benefits from reduced travel time searching for the fault location is expected to be $200k/year. The other benefits listed above have not been quantified in dollar terms.

e. Strategic Sourcing.
There is no plan or business case available for strategic sourcing. It is an initiative which has been undertaken through which Hydro One Networks will extract savings in the purchase of major equipment, commodities and services such as power

transformers, circuit breakers, wood poles, distribution transformers, wire and cable, and pole and line hardware.

Further details on the strategic sourcing initiative are provided in Exhibit I, Tab 10, Schedule 3 and Exhibit C1, Tab 4, Schedule 1, pages 21 and 22.

f. Incremental dollar savings.
The following table provides an illustration of the "embedded" savings that are not included in the annual estimates of incremental savings as discussed in Exhibit A, Tab 14, Schedule 1, page 7.

	2007	2008	2009	2010 Bridge	2011 Test	2012 Test
OM&A (non-Cornerstone) Savings ($M)	9.7	12.8	15.2	18.9	21.7	23.7
Capital (non-Cornerstone) Savings ($M)	4.2	4.8	7.8	10.1	14.4	17.7
Cornerstone OM&A Savings ($M)	-	-	-	6.3	10.3	13.5
Cornerstone Capital Savings ($M)	-	-	-	4.5	7.5	9.5
Total Savings ($M)	**13.9**	**17.6**	**23.0**	**39.8**	**53.9**	**64.4**

g. The change was not in the 100% level of the bands – the reduction was in the maximum and minimum weekly salaries for each band, as shown below for 2007.

Salary Band	Old 100% Level	New 100% Level	Old Range	New Range
MP2	1,638	1,638	1,310-1,884	1,147-1,638
MP3	1,747	1,747	1,397-2,009	1,223-1,747
MP4	1,862	1,862	1,490-2,142	1,303-1,862
MP5	1,986	1,986	1,588-2,283	1,390-1,986
MP6	2,117	2,117	1,694-2,435	1,482-2,117
FMP09	1,351	1,351	1,081-1,554	1,013-1,448
FMP10	1,441	1,441	1,153-1,657	1,081-1,554
FMP11	1,536	1,536	1,229-1,767	1,152-1,646
FMP12	1,638	1,638	1,310-1,884	1,229-1,755
FMP13	1,747	1,747	1,397-2,009	1,310-1,872
FMP14	1,862	1,862	1,490-2,142	1,397-1,995
FMP15	1,986	1,986	1,588-2,283	1,490-2,128
FMP16	2,117	2,117	1,694-2,435	1,588-2,268
TMS01	1,441	1,441	1,153-1,657	1,009-1,441
TMS02	1,536	1,536	1,229-1,767	1,075-1,536
TMS03	1,638	1,638	1,310-1,884	1,147-1,638
TMS04	1,747	1,747	1,397-2,009	1,223-1,747
TMS05	1,862	1,862	1,490-2,142	1,303-1,862

Attachment 2 is a copy of the renewed collective agreement.

The salary band changes are expected to realize significant savings; however, the overall dollar impact is not readily quantifiable. Calculating the savings would require many assumptions, and most of the savings will not be realized within the test period. This is due to the fact that a number of employees were already above the 100% level and have been grandfathered. The savings will be realized with those employees who were at or below the 100% level and new employees. For example, under the previous wage schedule the lowest weekly salary a new MP4 employee could be offered was $1,490. Under the new schedule, this employee could be offered $1,303. Over one year, this equates to a savings of almost $10,000 for just that one employee. Additionally, that same employee could have attained 115% of the reference point under the old salary bands. Under the new salary bands, the employee cannot exceed the 100% level. The difference between the 115% level and the 100% level over one year for one employee, using the 2007 figures for MP4, is almost $15,000.

h. Attachment 3 are the constraints from the PWU agreement, Attachment 4 are the constraints from the Midterm Agreement 50-2, Attachment 5 are the constraints from the Society collective agreement and Attachment 6 are the constraints from the Canadian Union of Skilled Workers agreement.

In most cases involving the Building Trades Unions ("BTU"), work can be contracted or subcontracted as long as the "labour requirements" practice is followed. This means that the contractor/subcontractor is required to apply the terms and conditions of the relevant BTU agreement if and when the work being performed falls under that agreement.

i. Please refer to Attachment 7 for the planning document relating to the employee engagement program.

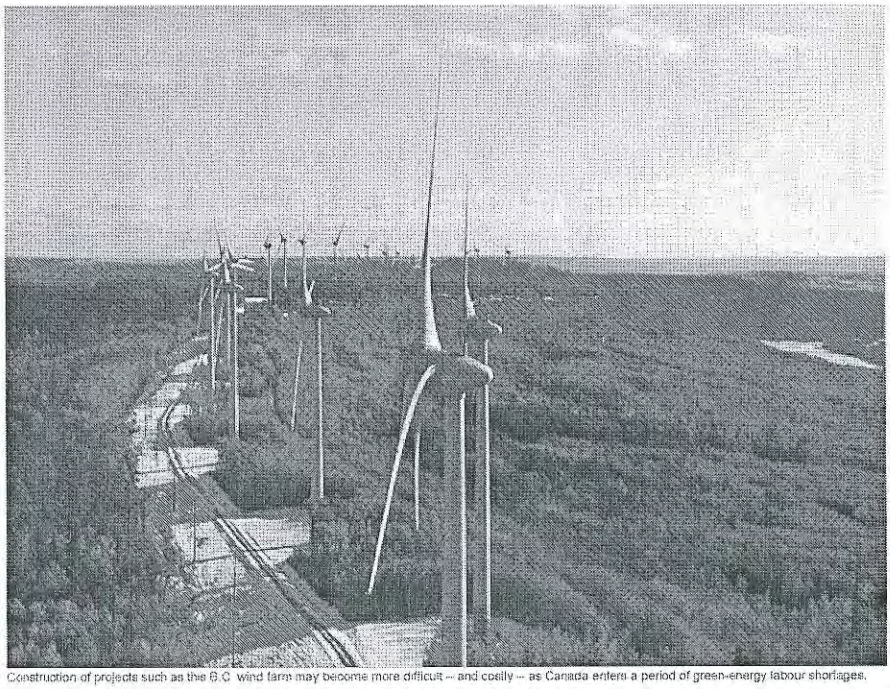
The administration costs of the program to date have been $573,000. Due to contractual and commercial reasons, the third party who completed the report for Hydro One does not agree to have the report issued under the terms of the Release Agreement.

Filed: August 16, 2010
EB-2010-0002
Exhibit I-7-14
Attachment 1
Page 1 of 7

Labour shortages loom over Canada's clean power sector

In this story: GE US$16.43 $0.03

Data delayed at least 15 min



Construction of projects such as the B.C. wind farm may become more difficult -- and costly -- as Canada enters a period of green-energy labour shortages. Courtesy of B.C. Environment Ministry

Susan Taylor and Nicole Mordant, Reuters · Tuesday, Jul. 27, 2010

A shortage of skilled workers could stall Canada's push to develop sources of clean energy — delaying construction schedules, boosting development costs and squeezing profit margins in coming years.

Educators, industry players and analysts see a widening gap between the demand and supply of trained staff for the thousands of green-power projects expected to start operations between 2011 and 2013.

Ontario, with its lucrative, long-term clean-energy contracts, is most vulnerable. Some 50,000 clean-energy jobs are expected to be created in the province in the next three years. The jobs range from construction workers building wind and solar farms to electrical engineers, factory machinists and information technology specialists.

Compounding the problem, scores of Canadian power workers will retire soon, while a slew of new specialized college programs will take several years to churn out green graduates.

According to Canada's Electricity Sector Council, 74% of the industry's workers are over the age of 40 and during the next decade, 40% of all workers plan to retire.

What's more, 30% of the companies that produce electricity have no plan to manage the looming exodus.

"It will slow down the growth of [renewable] power," said Om Malik, president of the IEEE, referring to the expected shortage of workers. The IEEE is an international professional organization for the advancement of technology,

"It's exactly what was happening two, three years back, here in Alberta, in the oil sands. There was such a shortage of people," Mr. Malik said.

During the boom years of Alberta's oil-sands development, a labour shortage either stretched out the construction time on projects or led to cancellations, he said.

A U.S.-Canada clean-energy partnership warns an "impending" labour shortage and new technologies that require demanding training pose two big hurdles to greenhouse gas reduction and modernizing an aging electrical grid.

"Within five years, the electricity sectors in both Canada and the United States will suffer from a severe shortage of skilled workers," said a recent report from the Canada-U.S. Clean Energy Dialogue.

The group, set up in 2009 when Barack Obama, the U.S. President, and Stephen Harper, the Prime Minister, met in Ottawa, is charged with expanding clean-energy research and development in the two countries.

The issue will "threaten to compromise North America's ability to capitalize on clean energy," the group said.

Ontario, a hotbed for solar power projects, faces the most formidable hurdles in finding skilled workers.

In the coming years, Ontario will require thousands of electricians, electrical contractors and developers experienced in photovoltaic operations and pricing — workers already in short supply.

A 2009 poll of Canada's solar industry found that 41% of the 91 companies surveyed were experiencing labour shortages, particularly for equipment installation.

The companies expected the number of workers needed by the sector to double by the end of 2011, and that was before Ontario announced generous tariffs for small producers to feed green energy into the provincial grid. The program that's bound to trigger even heavier demand for skilled labour.

"With the feed-in tariff program in Ontario, that gap may actually broaden," said Elizabeth McDonald, president of the Canadian Solar Industries Association. "We are concerned about the gap both in terms of numbers and in terms of skills."

Ontario's Sustainable Energy Association, an organization formed to implement community-based green energy projects, has joined the Canadian Union of Skilled Workers and two colleges to study how to meet the expected demand for skilled labour.

They believe workers will increasingly need to have multiple skills so they can understand the big clean-energy picture.

"If you're installing a solar system, or building a wind project, or developing a green community, you need to think about things from an integrated approach," said Kris Stevens, the association's president.

"The system is changing. It's not about big power anymore and large centralized plants. It's about distributed generation."

GoodWork Canada, founded in 2001, is a venture that matches "green-minded people" with jobs, contracts and internships.

Starting as a small email list, the website goodworkcanada.ca has grown by about 40% annually, said its founder Peter Blanchard. It now gets hundreds of thousands of hits each month.

"We have seen an increase in postings from wind and solar projects, definitely, in the past while," he said.

Finavera Renewables Inc., a Canadian wind power developer, said part of its strategy is to stand out among its peers with the quality of its staff. To attract and retain seasoned employees, a scarce commodity for fledging companies, it offers "above average" perks, including stock options.

"I need somebody who has spoken the language of large utilities, who has negotiated successfully with GE, or groups of that ilk. Having the ability to interface with the big boys is very important," chief executive Jason Bak said.

"We've got to 'incentivize' people by allowing them to participate in the growth of the company and one great way that we can do that is by issuing options [because] the return for a success in a junior company of our size is much greater than in a large company."

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TUVALU Score: 1

2:45 PM on July 27, 2010

Report Abuse

We can't afford these 'green' ecoterrorist schemes anyways. There is a limit to how much taxpayer money can be wasted.

Cut back on this waste and instead let the legacy industries continue to do their good work. The sun is the cause of global warming no matter how many faked 'studies' are published to the contrary.

By diverting scare public funds away from health, education, infrastructure and security, there will come a day when the government credit cards can't be paid. We have been maxed out for years. Please stop.;

DUNMAGLASS Score: 0

5:00 PM on July 27, 2010

Report Abuse

A lot of money and effort has gone into developing community colleges in Nova Scotia. All of them pride themselves on the quality of their product-i.e. their graduates. They also seem to be very quick to respond to the needs of the business world, so I do not understand why there would be a short-term shortage or a looming shortage; it just does not seem to mesh with the many facilities that are available to supply what is needed. Isn't this also an opportunity to promote apprenticeship and short-term transition programs for people who have skills from comparable jobs that are highly correlated to those needed in many of these emerging green initiatives.Perhaps someone is falling down in getting the word out there. There are many able women and men who would relish the chance to work in this sector with wages that you can live quite well on and an opportunity to work at a number of different jobs over their working lifetime.If there is a problem with supplying the skilled labor then, I suggest, it does not rest with the workforce; it has to be somewhere between industry and the educational institutions- maybe bureaucrats?

INGENIERO90 Score: 0

12:36 AM on July 28, 2010

Report Abuse

Here we go again....
Canada has talent and educated people, tons of Electrical Engineers I was one of them. I had to leave Canada because there were no jobs, there are more than 50,000 Engineers in Ontario alone eager and willing to land one of these "jobs". This is what I see happening. Those jobs will never open up in Canada, more electrical engineers from Canada will end up working in USA where they get the chance(s) to develop their full potential.
Canada is time to wake up

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Canadian immigration and foreign recruitment news

A project of Stacey Belding, Canadian immigration lawyer and Managing Director of Canada Immigration Group

Canada's top problem is filling labour shortage

David Akin , Canwest News Service

Published: Monday, May 05, 2008

OTTAWA – When Prime Minister Stephen Harper gathered the country's premiers at 24 Sussex Drive last fall, he wanted them to focus on what he saw as the country's No. 1 economic problem: within a decade or two, there simply will not be enough workers in the country.

Although recent headlines about thousands of layoffs in Canada's struggling manufacturing sector may suggest otherwise, Harper and his cabinet are struggling to find ways to boost training programs and increase immigration to find more workers to avoid what some Conservative strategists say is an "economic time bomb."

That Canada is heading for a problem seems unavoidable. In the last 50 years, Canada's workforce grew by 200 per cent. That growth was responsible for raising standards of living and creating the public and private wealth the country now enjoys. But government forecasters say that, without some radical changes, the workforce will only grow by 11 per cent in the next 50 years – and that figure includes the effects of current levels of immigration.

"Our demographics are working against us," Human Resources Minister Monte Solberg said in a speech Monday to the Canadian Building and Construction Trades' Legislative Conference. "Baby boomers are set to retire and our low birth rate means demand for workers will soon outstrip supply."

Already, more than 80 per cent of working-age Canadians have a job – an all-time high.

Solberg marshalled the following data to back up his claim:

. British Columbia will be short 350,000 workers over the next 12 years.

. Alberta will require 100,000 workers over the next 10 years.

. Ontario will need 560,000 more workers by 2030.

. Quebec will have 1.3 million job openings by 2016.

"We have a significant shortfall of workers in every region across Canada," said Solberg. "Even in areas of high unemployment, we have too few skilled workers."

Canada's labour market has consistently defied market forecasters for the last three years. Despite a high dollar, which makes Canadian workers relatively more expensive than workers in other countries, there were 325,000 new jobs created in Canada in the last 12 months. That job gain comes despite the loss of more than 113,000 jobs in manufacturing. In other words, the economy not only replaced those 113,000 lost manufacturing jobs, it also created an additional 325,000 jobs. The construction sector alone has grown by more than 103,000 workers.

And, as the Bank of Canada noted in its monetary policy report last week, year-over-year wage growth has been strong as well, suggesting that good-paying manufacturing jobs are being replaced with equally well-paying jobs elsewhere.

Statistics Canada will release the latest monthly job data Friday.

Finding more skilled workers is one of the goals behind Ottawa's controversial proposal to change immigration rules to fast-track certain groups of immigrants although political opponents say that rationale has not been appropriately clarified.

Link to original article.

Posted by Stacey
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government or the universities are doing."

their own recruitment practises before complaining about what the Government or the universities are doing," said the UK Government's Lammy.

Skills and experience do not appear overnight, so the commitment in the UK and across Europe must have a long-term focus. There is no shortage of job opportunities for skilled engineers in the power sector. The question, however, remains as to how soon the supply of key skills can catch up with demand, and only a concerted effort by all parties will provide the answer.



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The Alliance of Sector Councils

Internationally Trained Workers

In Canada, the integration of internationally-trained workers into the labour force is a pressing issue. As is the case with other industrialized nations, Canada's economy faces the challenges of labour shortages, increasing need for skilled workers, the globalization of labour markets, and rapid demographic change. Industrialized nations today are competing with each other to recruit and retain internationally-trained workers—valuable human resources that can help economies facing labour shortages, increasing need for more skilled workers, and rapid demographic and technological changes.

In Canada, the situation is urgent. Due to demographic changes, it is predicted that immigrants will account for 100% of net labour force growth by the end of this decade. However, it has been estimated that Canada currently loses approximately 30% of its new and highly skilled arrivals because they are unable to integrate into the economy and in communities. In 2006, the national unemployment rate for immigrants was 11.5%, more than double the rate of 4.9% for those Canadian-born. Immigrants find work, but only 42% work in their intended occupations. These historically weak integration patterns remain systemically persistent and appear to be getting worse.

Various studies have shown that the successful integration of internationally-trained workers is affected by:

poor preparation prior to immigrating,
weak proficiency in the language of work,
necessary requirements for Canadian work experience,
non-recognition of prior experience and qualifications, and
lack of appropriate social supports and networks to gain access to employment.

Since the recognition of prior experience and qualifications is key to bringing into play the full potential of the internationally trained worker in the Canadian labour force, the term *Foreign Credential Recognition* (FCR) is often used broadly to encompass the range of issues associated with the integration of internationally trained workers in the workforce.

Scroll through the list below to find out what sector councils are doing to promote the integration of internationally-trained workers in the Canadian labour market.

BioTalent Canada is building capacity within the biotechnology sector so that internationally educated professionals can be assessed and connected with employers in an efficient and reliable fashion. Click here for more information.

The Canadian Aviation Maintenance Council is developing a national system to assess the skills of aviation and aerospace workers. Click here for more information.

The Canadian Apprenticeship Forum has completed a project, Accessibility and Removal of Barriers that identifies the perceived barriers faced by recent immigrants and other groups when accessing and completing apprenticeship training in Canada

The Canadian Automotive Repair and Service Councils has developed an inventory of available programs and resources for employers looking to hire and retain internationally-trained workers. CARS also welcomes internationally-trained workers to assess their skills at www.carsability.ca to help them identify any professional development that would enhance their success when integrating into the Canadian workforce.

The Canadian Plastics Sector Council has developed an online sourcebook documenting federally and provincially sponsored second language training programs for workers who are newcomers to Canada. Click here for more information.

The Canadian Tourism Human Resource Council has conducted seminal research to inform the development of a foreign credential recognition system to address non-regulated professions.

The Canadian Trucking Human Resource Council is in the final stages of a project with the objectives of reviewing Canada's need for foreign trained workers in the trucking industry, ensuring that a mechanism exists to recognize the competencies of foreign-trained workers, and facilitating a system to create seamless work transitions for new Canadians whose competencies have been recognized. The project will result in a resource guide geared towards helping employers recruit drivers and mechanics who have acquired their skills outside of Canada.

The Construction Sector Council has developed a comprehensive six-point strategy for Foreign Credential Recognition in the Construction Industry. Additional publications, including an analysis of information available to immigrating tradespersons and an international comparison of the FCR process can be found here.

The Electricity Sector Council's Foreign Credential Recognition Project has completed a review of industry recruitment and employee-integration practices with recommendations on how Canada's electricity sector can develop strategies to optimize the workplace contributions of foreign-trained workers.

Engineers Canada is working on a multiphase project, *From Consideration to Integration*, which addresses foreign credential recognition issues in the engineering profession.

The Information and Communications Technology Council has launched the Internationally Educated Professionals Integration Initiative, which aims to improve the integration of Internationally Educated Professionals (IEPs) in the Canadian ICT workforce through the development of a nationally recognized, competency-based self-assessment tool for IEPs; and the creation of mentoring processes and tools for IEPs, small- and medium-sized businesses and organizations working with IEPs.

The Petroleum Human Resources Council has published an article on hiring temporary foreign workers which contains links to important websites. (Click here to find out more about the article.) It has also launched a study on barriers and opportunities to hiring and integrating internationally-trained workers already living in Canada, which will feature tools, best practices and recommended actions for the Petroleum Human Resource Council's consideration. (Note: this study has not yet been posted on the website, but should eventually be accessible from the link shown above.)

The Textiles Human Resources Council is implementing the Global Skills Connection Project. This project is investigating the challenges associated with attracting and integrating new immigrants into the textile workplace as part of the Council's examination of current and future skills shortages in the Canadian industry.



Power Skills Shortage Threatens Development

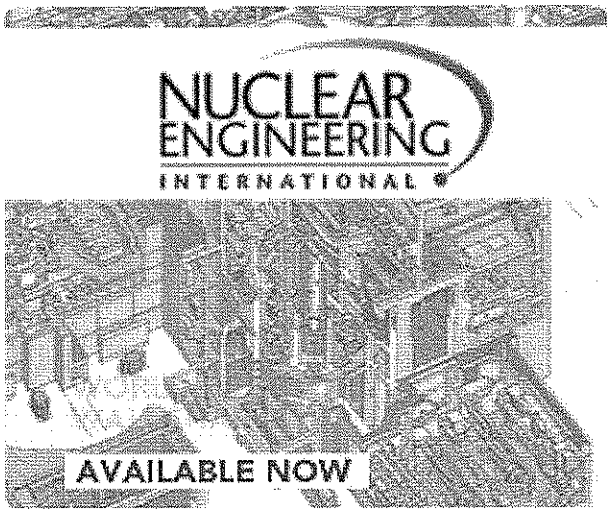
As the demand grows for cheaper, cleaner and more abundant power the industry faces problems with the supply of a key resource - engineering expertise. Jim Banks reports as the skills shortage takes hold.

Date: 06 Nov 2008

Email Article Print Link To Us

The lack of skilled engineers in the power sector has now grown into a gaping skills gap and the industry faces a challenge to increase the pool of talent with a new generation of graduates. The situation has become so severe that expansion in many sectors, most notably nuclear power generation, could slowly grind to a halt unless that gap is bridged.

Despite the stark reality of the situation being raised at the highest level in the UK and throughout Europe, the scale of the problem is nowhere near to being tackled.



"It is a very serious problem. The amount of business companies in the power sector can address is limited by the skills available to them. Their expansion is not limited by raw materials, or any other such consideration, but by a lack of engineering graduates," says Professor Paul Acarnley, manager of the E3 Academy, which provides sponsorship and support for engineering scholars seeking careers in new technology development, power electronics, control systems and automation.

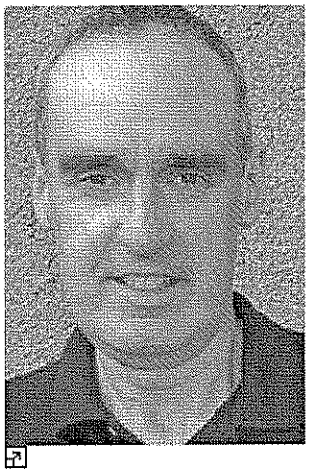
Acarnley also notes that the generation and distribution sector faces the same challenge and that the problem is felt around the world.

"It is a global problem. Companies have gone around the world - looking to Eastern Europe, Brazil, India and China - but none of these steps have sorted out the problem. In terms of the skills to develop new products, most reside in the UK. There is an awful lot of hard work left to do," he adds.

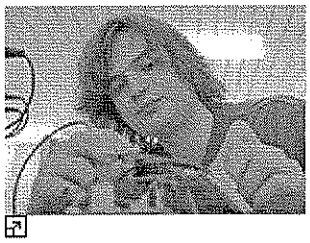
It is the UK, however, that has seen the skills shortage highlighted most acutely. The number of engineering graduates has steadily fallen over the last ten years, from 11% of the annual total of graduates in 1998 to 7% in 2007, despite a rising trend in the number of students at university.

This shortfall has not gone unnoticed, and the voices of warning have been growing louder. In last year's 'Energy Pulse' survey by energy services company Doosan Babcock, an overwhelming majority of energy experts highlighted the UK's serious lack of skills as a major problem. Chief executive Iain Miller noted that there is now an "increasing unease about the ability of the industry to implement all the investment required."

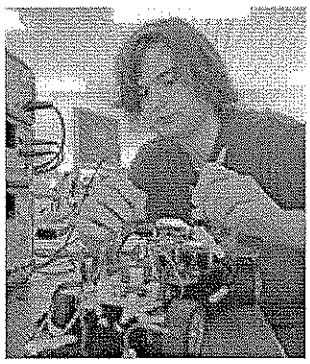
Earlier this year, the UK's David Lammy MP, Minister for Innovation, Universities and Skills, acknowledged the seriousness of the problem, saying: "The energy sector itself is something that we shouldn't be too eager to take for granted. We know that skills have been an issue in this country for decades, especially in the technical and scientific fields."



Expand Image
Professor Paul Acarnley of E3 Academy



Expand Image
The number of engineering graduates has steadily fallen over the last ten years, from 11% of the annual total of graduates in 1998 to 7% in 2007.



the technical and scientific fields.



Expand Image

Europe has seen very little nuclear development in the last two decades, except in France, so the pool of talent has dwindled.

Nuclear threat

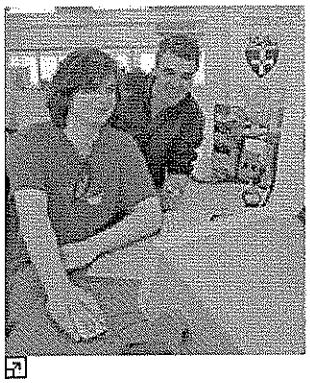
The skills shortage has come to the fore in the nuclear sector. Although 20% of the UK's electricity is supplied by this sector today, it is a figure that will increase significantly with the government's plans to expand nuclear generation capacity in the years ahead. It is also a focus for expansion in many parts of Europe, but access to the right skills could put the brakes on.

"It is estimated that up to 9,000 graduates and 4,500 people in skilled trades will be needed in the UK to support the nuclear industry."

Europe has seen very little nuclear development in the last two decades, except in France, so the pool of talent has dwindled. The first nuclear power station commissioned in Western Europe since the disaster at Chernobyl in 1986 is Finland's Olkiluto-3 reactor, originally planned to start operation next year, but now delayed until 2011.

It is estimated that up to 9,000 graduates and 4,500 people in skilled trades will be needed in the UK to support the nuclear industry in the next decade, hence the government's formation of The National Skills Academy for Nuclear in early 2008.

Lammy has said that there is a sense that this should be a huge boost to the nuclear industry.



Expand Image

Students accepted as part of the E3 Academy intake at Newcastle or Nottingham Universities receive substantial support during and after their studies.

"[It] puts employers at the heart of the training process, giving them the opportunity to directly shape all aspects of the design and delivery of skills training in the nuclear sector."

Another key area for politicians, power companies and their customers is renewable energy, but yet again the development of new technologies could be hampered unless more skilled engineers are found.

"Investments in alternative energy are already going on, and they must continue, but you cannot take any action on climate change unless you have access to the right skills," says Acarnley.

Nurturing talent

The E3 Academy is one example of how the UK is trying to address the skills problem. Students accepted as part of the E3 Academy intake at Newcastle or Nottingham Universities receive substantial support during and after their studies. This support can include an annual bursary, paid training during the summer, reimbursement of tuition fees after graduation and employment with an academy partner company.

"The value of E3 is in the strong relationships between the academy, the scholars and the companies. We must develop a strategy in which everyone takes responsibility and works together to make engineering an attractive career option. The E3 Academy will expand, but it addresses just one small area of the technology within engineering, so there needs to be a series of academies for each sector of engineering," he adds.

"Science, engineering and technology employers should look hard at their own recruitment practises before complaining about what the Government or the

Indeed, the involvement of industry is crucial, especially as many engineering graduates do not subsequently pursue careers that use their specialist skills.

"Engineering graduates are almost unique in that they are trained to be problem-solvers. That mindset means they have valuable and transferable skills that are recognised by many industries," says Acarnley.

Many major energy companies are already involved and signed up to the Skills Pledge - a public promise to drive their business forward by training employees. Politicians and educators alike would like to see more companies make this commitment.

"Science, engineering and technology employers should look hard at

COLLECTIVE AGREEMENT

BETWEEN

HYDRO ONE INC.
("Hydro One" or "The Employer")

AND

THE SOCIETY OF ENERGY PROFESSIONALS
("The Society" or "The Union")

July 1, 2007 - March 31, 2013

IN WITNESS THEREOF the parties hereto have caused the Agreement to be executed by their proper officers duly authorized in that behalf at Toronto, Ontario.

_____	_____
Hydro One Inc.	The Society of Energy Professionals

_____
Date

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PART I – MANAGEMENT RIGHTS

1 MANAGERIAL RIGHTS OF THE COMPANY

Hydro One Inc. has and shall retain the exclusive right and power to manage its business and direct its working forces, including, but without restricting the generality of the foregoing, the right to hire, suspend, discharge, promote, demote and discipline any employee. Hydro One shall exercise the said functions in accordance with the provisions of the Collective Agreement.

PART II - RECOGNITION

2 RECOGNITION CLAUSE

2.1 Provincial Jurisdiction

Hydro One Inc. recognizes the Society as the exclusive bargaining agent for a bargaining unit comprised of:

All employees employed in Hydro One Inc., hereinafter known as Hydro One***,*** in the Province of Ontario employed as supervisors, professional engineers, engineers-in-training, scientists, and professional, administrative and associated employees, save and except for persons who perform managerial functions as distinct from supervisory functions; persons employed in a confidential capacity with respect to labour relations; and persons in bargaining units for which any trade union held bargaining rights as of November 13,1991.

2.2 Federal Jurisdiction

The Society was certified in May 1995 under the Canada Labour Code for a bargaining unit comprised of the following***:***

All employees of Ontario Hydro employed by Ontario Hydro Nuclear (OHN) in the Province of Ontario employed as supervisors, professional engineers, engineers-in-training, scientists, and professional, administrative and associated employees, save and except for persons who perform managerial functions as distinct from supervisory functions; persons employed in a confidential capacity with respect to labour relations; and persons in bargaining units for which any trade union held bargaining rights as of November 13, 1991.

On April 1, 1998, jurisdiction for labour relations for the above Ontario Hydro noted federal bargaining unit was delegated to the Province of Ontario***.***

2.3 Clarity Notes

2.3.1 For the purposes of clarity, the bargaining units set out above:

Include:

a) all regular, probationary, graduate students, reduced-hours and temporary employees whose functions are included in the classifications paid from Salary Schedules ***01, 02 and 03***.

Exclude:

a) those persons who perform managerial functions as distinct from supervisory functions. An employee is performing managerial functions if:

i) she/he performs managerial functions such as hiring, promotion, performance increase, discharge, etc., over other employees in the bargaining unit; and

she/he is required to spend the majority of his/her time performing managerial duties; and

she/he supervises at least seven (7) employees (directly and indirectly) on a regular and continuous basis; or

ii) she/he supervises persons who are excluded from the Society's bargaining unit by reason of performing managerial functions or being employed in a confidential capacity with respect to labour relations.

2.3.2 Definitions

a) "Supervisors" means employees who primarily perform supervisory functions, including the requirement to make recommendations regarding any staff or personnel matter. These staff or personnel matters include, but are not limited to, such areas as selection, promotion, appraisal, discipline, transfer, staffing needs, work methods, changes in terms and conditions of employment, grievances, or the interpretation and administration of the applicable Collective Agreement. "Supervisors" includes employees in other employee classifications who perform supervisory functions.

b) "Professional engineer" means either: a) an employee who is a member of the engineering profession entitled to practice in Ontario and employed in a professional capacity; or b) an employee with equivalent credentials who is in a position that requires engineering expertise and specialized knowledge. This definition includes all employee categories included under the heading of "Professional Engineer" listed in Attachment A to Appendix I "Utilization and Advancement of Professional Engineers and Scientists" in this Agreement. "Professional engineers" includes employees who satisfy these criteria and who are required to perform supervisory functions.

c) "Engineers-in-training" means an employee who has completed a course of specialized instruction in engineering sciences and graduated from a university or similar institution, who has not satisfied all the requirements for practicing as a professional engineer and who is on a structured training program to partially satisfy these requirements.

d) "Scientists" means employees who are university graduates in the Natural Sciences, the Applied Sciences, Mathematics or Computer Sciences, who are not classified as professional engineers, and who are engaged in the application of this specialized knowledge in the course of their employment. This definition includes all incumbents in positions identified under the heading of "Scientists" listed in Attachment A to Appendix I entitled "Utilization and Advancement of Professional Engineers and Scientists" in this Agreement. "Scientists" includes employees who satisfy these criteria and who are required to perform supervisory functions.

e) "Professional employee" means an employee who:

i) in the course of his/her employment is engaged in the application of specialized knowledge ordinarily acquired by a course of instruction and study resulting in graduation from a university or similar institution; and

ii) is eligible to be a member of a professional organization that is authorized by statute to establish the qualifications for membership in the organization; or

iii) performs the functions, but lacks the qualifications of a professional employee.

"Professional employees" include employees who satisfy these criteria and who are required to perform supervisory functions.

f) "Administrative employee" means an employee who normally supervises persons engaged in office administration, construction**,** security or maintenance work who are represented by another trade union. This definition includes employees who share a community of interest with "supervisors".

g) "Associated employees" means employees in positions which normally require a university degree or equivalent education or experience. This definition encompasses employees who share a community of interest with "professional engineers", "scientists" or "professionals" and includes, but is not limited to, Nurses. "Associated employees" includes employees who satisfy these criteria and who are required to perform supervisory functions.

2.4 Supervisory Employees - Code of Ethics

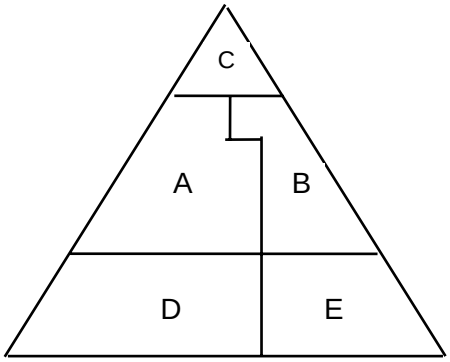
Hydro One agrees to include supervisory employees in the bargaining unit on the condition that the parties recognize that supervisory employees will continue to exercise key functions in the control and operation of Hydro One. As members of Hydro One's managerial staff, supervisors use judgment to express and make operative the decisions of Management. They are responsible for fostering a healthy work environment. The parties recognize the responsibility of supervisors to discharge their supervisory duties in good faith. The Society and Hydro One will identify, minimize and/or avoid the conflicts/perceived conflicts of interest that may arise concerning the relationship between supervisors, the Society and Hydro One.

It is recognized that supervisory employees may be disciplined for failure to act in good faith as a representative of Management and fulfilling their responsibilities including abuse of supervisory position and breach of trust.

2.5 Exclusions Process

Hydro One and the Society agree to the following process for the purpose of excluding new and changed positions from the Society's jurisdiction.

1. The following new or changed job documents or their electronic equivalents in Scenarios A to D will be sent to the Society for their review:



A - Society Jobs
B - MF Jobs
C - Borderline Society/ESR Jobs
D - Borderline Society/PWU Jobs
E - MS Jobs

Scenario	New Jobs	Revised Jobs
A	Documents will be sent to the Society after finalization.	i) If job leaves Society jurisdiction, documents will be sent to the Society before finalization. ii) If Society jurisdiction does not change, documents will be sent to the Society after finalization.
B	Documents for new MF jobs will be sent to the Society before finalization.	If jurisdiction changes to Society bargaining unit, documents will be sent to the Society after finalization.
C	Documents for new first-level ESR jobs will be sent to the Society before finalization.	If jurisdiction changes to Society bargaining unit, documents will be sent to the Society after finalization.
D	Documents for the following new jobs not established as PWU jobs in the past will be sent to the Society before finalization: i) supervisory jobs, and ii) non-supervisory jobs which report to a Society-represented position and are paid at the final step rate at or above MP1 reference point.	If jurisdiction changes to Society bargaining unit, documents will be sent to the Society after finalization.

2. ***If a new or changed job is excluded from the Society's jurisdiction and the Society has concerns with the exclusion, the parties will meet within 15 days of the exclusion request to attempt to resolve any outstanding issues.***

3. ***If the parties are unable to resolve the issues, the Society can request that the dispute be submitted to expedited arbitration. A hearing will be held within 30 days of the referral, and a decision will be rendered within 15 days of the hearing. Management cannot implement the exclusion until the Arbitrator's decision. The Society must inform Hydro One of their intent to***

request arbitration within 10 days of the meeting taking place. If the Society does not request arbitration, Hydro One is free to implement the excluded position.

4. Management will notify the Society office of any jurisdictional grievance filed by another trade union against a Society-represented position and will advise the Society of any change in status (e.g., referred to next step, resolved, withdrawn).

5. Attachment 1 is the exclusion form which will be used in accordance with this process. The Society's agreement to exclude any position under this process is without prejudice to its position in any proceedings and will not limit the Society's right to challenge the exclusion at a later point in time.

ATTACHMENT 1 Hydro One Request for Society Exclusion

-Note: Before an occupation code can be issued, completion of the shaded areas by Line Management and/or Human Resources is mandatory.

date	**job title**	**schedule/grade**
business unit	**division**	**department**

This is a: ☐ new document

☐ revised and previously excluded document - existing occupation code:

☐ revised and previously included document - existing occupation code:

☐ Managerial Exclusion ☐ Confidential Exclusion ☐ Within Another Trade Union

SOCIETY UNIT DIRECTOR	**SOCIETY STAFF OFFICER**
☐ Agreed ☐ Disagreed	☐ Agreed ☐ Disagreed
If disagreed, why?	If disagreed, why?
_____	_____
Society Unit Director (signature)	Society Staff Officer (signature)
_____	_____
Date:	Date:

(The Society's agreement to exclude any position from its jurisdiction is without prejudice to challenge this exclusion at a later point.)

Line Management (signature)	Human Resources Department (signature)
_____	_____
Date:	Date:

Note: See Article 2 of the Society-Hydro One Collective Agreement for the complete Recognition Clause and Letter of Understanding, dated Oct. 4, 1994. For clarification or information regarding exclusion, please contact your Human Resources Officer or Labour Relations - Corporate HR or the Society Office or a Society Unit Director.

2.6 Successor Rights

2.6.1 The Hydro One agrees that it will not directly or indirectly request government to exempt the Company or the Society from the successor rights provisions of the applicable labour relations legislation.

2.6.2 The successor rights provisions of the applicable labour relations statute shall be incorporated by reference into this collective agreement. No board of arbitration established pursuant to the grievance and arbitration provisions of this contract has jurisdiction to make any decision within the jurisdiction of the Labour Relations Board and nothing herein is intended to affect the jurisdiction of the Labour Board to resolve disputes related to the application of the provisions of the statute. For purposes of s.48 of the *Ontario Labour Relations Act* and s. 57 of the *Canada Labour Code*, the Ontario Labour Relations Board or the Canada Labour Relations Board shall be deemed to be a Board of Arbitration for the resolution of disputes related to the interpretation, application, administration or alleged violation of this provision of the collective agreement. The remedial powers of the Labour Board shall be as set out in the relevant statutory provisions governing successor rights.

3 EMPLOYEE CLASSIFICATIONS

3.1 Probationary Employees

A probationary employee is an employee who is hired on a trial basis with the prospect of being reclassified as a regular employee, if the employee's performance satisfactorily meets the job requirements. The probation period is normally a minimum of three months and a maximum of six (6) months. After six (6) months, the employee will either be made regular, transferred to another probationary position or terminated unless there is an expectation that a longer probationary period will result in improvement in a specific area which has been identified to the employee (e.g. completion of a training course or a specific work assignment, interrupted probationary period as a result of parental leave, etc.) The employee's benefits and working conditions are the same as regular employees with exceptions identified in the provisions where different treatment has been agreed to.

3.2 Regular Employees

A regular employee is an employee who has either served the required probationary term or has previously been employed in one of the other categories and has satisfactorily met the job requirements. The employee occupies a position that is considered part of the on-going organization of Hydro One**.**

3.2.1 Reduced Hours of Work Regular Employees

A reduced hours of work regular employee is an employee who has regular status but works less than the base hours for a full-time position. The employee's benefits and working conditions are pro-rated and based on the entitlements of the regular employees. The pro-rating is described in Article 71 (Reduced Hours of Work).

3.3 Temporary Employees

3.3.1 A temporary employee is an employee who is hired for short-term work assignment which is not ongoing (i.e. normally not extending beyond 24 months). The employee's benefits and working conditions are as per Article 33 (Temporary Employees).

3.3.2 Reduced Hours of Work Temporary Employees

A reduced hours of work temporary employee is an employee who has temporary status but works less than the base hours for a full-time position. The employee's benefits and working conditions are pro-rated as per Article 33 (Temporary Employees).

3.3.3 Student Employees

A student employee is an employee who is hired for short-term work which is not ongoing. He/she is normally in the process of completing his/her post-graduate studies and is expected to return to his/her studies after an agreed employment period. The employee's benefits and working conditions are as per Article 33 (Temporary Employees).

4 SERVICE CREDIT DEFINITIONS

Service credits shall be based on all previous full-time (regular, temporary and casual) service and part-time/reduced hours (regular and temporary) unless otherwise specified. (See Section 9.3 Transition Provisions)

4.1 Established Commencement Date (ECD)

The "ECD" represents the latest date of hire, subject to authorized adjustments for previous service as detailed below.

a) Regular

The ECD for regular employees is calculated by giving service credits for:

- probationary employment;
- 100% of employment service in an acquired company;
- previous regular and temporary (full-time and reduced hours employment), if there has been no break in service exceeding twelve (12) months;
- previous casual construction employment if there was no break in employment exceeding three (3) months (or 12 months for casual construction employees on the Pension and Insurance Plan).

(The ECD has an impact on sick leave and severance pay.)

b) Temporary

The ECD for temporary employees is calculated by giving service credits for:

- previous temporary employment, if there has been no break in service exceeding 3 months and employee has less than 12 months service;

- previous temporary employment, if there has been no break in service exceeding 12 months and employee has greater than 12 months service.

(The ECD has an impact on statutory holidays and floating holidays.)

4.2 Vacation Credit Date (VCD)

The VCD represents all service regardless of breaks. While a regular employee, service credits shall be based on the current ECD and adjusted for all previous periods of Hydro One employment. All employees who currently work reduced hours or have done so in the past, will have such service calculated as if were full time.

(VCD is used to determine vacation bonus.)

4.3 External Experience Value (EEV)

The EEV represents a vacation credit quantity expressed in number of years, months and days for external work experience granted to qualifying regular employees (Section 40.7). The EEV and VCD determine total years credit for vacation entitlement (days) and service-based payment in lieu of notice (Subsection 64.1***3***.1).

4.4 Service Recognition Date (SRD**)**

The SRD for regular employees represents all service while a Hydro One employee on payroll regardless of breaks in employment. Service credits shall be based on the last hire date and adjusted for all previous periods of Hydro One employment. All employees who currently work reduced hours or have done so in the past, will have such service calculated as if it were full time (it should never be pro-rated).

Authorized Adjustments:

a) Personal Leaves of Absence

SRD includes the time an employee is on "leave", if the employee is on a:

- personal leave of absence with pay; or

- personal leave of absence without pay which is less than 15 working days; or

- personal leave of absence without pay which is more than 15 working days and which was started on or after April 15, 1993 -- only that portion which was taken during the period from April 15, 1993 to August 31, 1997.

- prepaid leave of absence, under the enhanced leaves of absence policy dated April 16, 1993, greater than eight (8) weeks.

b) Pregnancy/Parental Leaves

SRD includes the time an employee is on a pregnancy/parental leave (previously referred to as normal or extended maternity/adoption leave).

c) Job Sharing

SRD is calculated as if the employee is working full-time hours.

d) Work Sharing

SRD is calculated as if the employee is working full-time hours.

(SRD has an impact on recognition of employee service at years 25 and 40, Quarter Century Club Membership and seniority (Article 64).)

4.5 "Eligibility Service" or "Continuous Employment" for Pension Purposes

Generally, it is the number of years (including a portion of a year) a pension plan member has been continuously employed in which there has been no break in employment exceeding 12 months. It includes previous Ontario Hydro/Hydro One pensionable service which has been reinstated; external service which has been transferred into the pension plan under a reciprocal pension transfer agreement; and periods of pregnancy/parental leave. It may include certain types of non Hydro One regular service purchased under special provisions. It generally excludes leaves of absence without pay except where the employee elects to pay the pension contribution. The exceptions are detailed in the pension rules.

Eligibility Service (ES) is used as an eligibility criterion for early retirement and the associated early retirement discounts; and in conjunction with Membership Service (i.e., the service subsequent to the date actually joining/started contributing to the Plan) and Age, to determine death and termination benefit entitlements.

5 TEMPORARY ASSIGNMENTS

There may be instances when employees are temporarily removed from their normal duties to perform work outside of the Society's bargaining unit. Likewise, employees from outside of the bargaining unit may be assigned temporarily to work within the Society's bargaining unit.

In such instances, the parties agree that:

5.1 Employees Temporarily Excluded from Society Jurisdiction

5.1.1 The Society shall be given prior notice of any temporary assignment exceeding three months' duration that Hydro One considers outside the bargaining unit, along with a rationale for the proposed exclusion.

5.1.2 The Society shall continue to represent employees who have been temporarily removed from their regular positions to perform work outside the bargaining unit for the first three months of the temporary assignment. Dues shall be deducted and remitted to the Society for the three month period.

5.1.3 Except where otherwise specified in this Agreement, Society-represented employees who are temporarily assigned to positions outside the bargaining unit shall have access to all benefits, plans or entitlements under Part X (Health Benefits), Part VII (Pension and Insurance), Part XI (Relocation Assistance), and Articles 64 *(*Redeployment**,** Surplus Staff and Change of Employer*)* and 65 (Vacancies) of the Collective Agreement for the full duration of the assignment.

5.2 Employees Temporarily Included in Society Jurisdiction

5.2.1 Hydro One personnel from outside the Society's bargaining unit who are temporarily assigned work within Society jurisdiction shall be represented by the Society for that portion of the assignment extending beyond three months, and dues shall be deducted for the period beyond three months.

5.2.2 During the period of Society representation, temporarily included employees shall be subject to the provisions of the Collective Agreement, but the following shall not apply:

- Article *31* (Performance Pay Plan)
- Part *IX* (Absence from Work)
- Part X *(*Health Benefits)
- Part VII (Pension and Insurance)
- Part XI (Relocation Assistance), except for Article 55 (Compensation when Assigned to Temporary Work Headquarters)
- Part XIII (Working Conditions) except for vacancy rights pursuant to Clause 65.6.3.g
- Other provisions or agreements to the extent they concern the above

5.3 Grievance

The Society's Complaint and Grievance/Arbitration procedure shall apply to any dispute relating to an applicable provision of the Society's Collective Agreement, including any dispute as to whether the Collective Agreement is applicable in the circumstances. The employee and/or the employee's bargaining agent retain any rights in respect of terms and conditions of employment to which the Society's Collective Agreement does not apply.

6 EMPLOYEES ON TEMPORARY OUT-OF-PROVINCE ASSIGNMENT

6.1 Terms and Conditions of Employment During Assignment

6.1.1 When a Society-represented employee accepts a temporary assignment outside Ontario, the employee:

a) retains his/her status as an employee of Hydro One;

b) continues to accrue service credit for all purposes under Article 4 of the Collective Agreement;

c) is required to pay Society dues during the term of any assignment beginning on or after January 1, 1995.

6.1.2 The employee remains represented by the Society until he or she begins this assignment. When an employee accepts a personal services contract, that contract together with this Article shall constitute the employee's complete terms and conditions of employment for the full term of the assignment. Hydro One will advise the Society after a personal services contract with a Society-represented employee is signed.

6.1.3 Hydro One will indemnify, or cause to be indemnified, each employee who, in the course of work on temporary out-of-province assignment, becomes subject to a claim made against him/her or to a threat of discipline from an association with statutory power to apply professional standards. Article 13 will apply unless indemnification provisions specific to a given contract or project are identified in the personal services contract.

6.2 Filling the Pre-Assignment Position

Before the employee commits to the assignment, Management will determine whether it intends to fill the position on a temporary or regular basis and discuss the decision and rationales with the employee. Hydro One will inform the employee of any intent to change this plan while the employee is on an out-of-province assignment.

6.3 Redeployment Upon Completion of Assignment

6.3.1 The line manager in the employee's pre-assignment Business Unit shall provide or shall identify appropriate personnel to provide the returning employee with employment-related information and assistance and to carry out the provisions of this Subsection upon completion of the assignment and return to Ontario.

6.3.2 When the employee's pre-assignment position with Hydro One continues to exist and has not been filled or has been filled temporarily, the employee shall return to that position.

6.3.3 When the employee's pre-assignment position with Hydro One no longer exists or has been filled regularly, and the employee is not surplus by operation of Article 64, the employee shall be placed in an Hydro One vacancy for which he/she is qualified, in the following order:

a) a lateral vacancy within the employee's pre-assignment Business Unit at the pre-assignment location;

b) within the pre-assignment Business Unit, a choice of a lateral vacancy at a new location, or a vacancy within two salary grades lower at the pre-assignment location;

c) within the pre-assignment Business Unit, a vacancy within two salary grades lower, in a new location;

d) redeployment in accordance with Article 64.

6.3.4 Placements under Subsection 6.3.3 (a), (b) or (c) above are exceptions to Hydro One posting requirements, consistent with Subsection 65.6.1 (b).

6.3.5 When there is a reasonable expectation that an employee will be placed in a different position upon return from a temporary out-of-province assignment, Hydro One will identify and notify the employee of potential placements. An employee who is not placed within 30 days of completion of the assignment and return to Ontario shall have the right to be redeployed in accordance with Article 64.

6.4 Employment Continuity During Temporary Out-of-Province Assignment

6.4.1 Employees on temporary out-of-province assignments will be neither advantaged nor disadvantaged with respect to rights under *Article 64* upon return from the assignment. When an employee's pre-assignment position has been included in a Unit of Application for redeployment under Article 64, the employee will be redeployed in accordance with Article 64.

The Joint Redeployment and Planning Team (JRPT) will consider issues such as:

- the number of employees within the unit of application who are on temporary out-of-province assignments;
- the duration of the assignments;
- the seniority of the affected employees;
- the qualifications of the affected employees;
- the ability to factor the employee into the on-going joint planning efforts (i.e., will the employee be returning during or shortly after the joint planning process);
- the ability to fill positions in the new organization on a temporary assignment basis in order to accommodate a returning employee;
- the need to fill positions in the new organization on a continuing basis;
- the need to keep employees apprised of developments within their unit of application that may impact on their job status during the assignment.

6.4.2 If an employee is declared surplus while he/she is on temporary out-of-province assignment, the employee will be notified and all surplus entitlements will be deferred until the employee completes the assignment and returns to Ontario.

6.4.3 An employee on temporary out-of-province assignment who is subject to redeployment under Article 64 in his/her absence and the JRPT determines:

a) the employee would have been matched to a position by virtue of seniority and qualifications and is, therefore, deemed not surplus; and

b) the employee will not be matched in the redeployment; then the employee will be entitled to treatment under Section 6.3 above.

7 LETTERS OF UNDERSTANDING

7.1 Letters of Understanding will form part of this collective agreement. Letters of Understanding are found in Part XVI.

7.2 Letters of Understanding

7.2.1 Intent

A Letter of Understanding may serve the following purposes:

- amend or add to the current provisions of the agreement;
- elaborate/clarify the intentions of a provision of the collective agreement
- establish provisions for issues not covered by the agreement

7.2.2 Grievance/Arbitration

Letters of Understanding are subject to the same grievance and arbitration provisions as are other items in the collective agreement

7.2.3 Approval

Letters of Understanding must bear the signatures of both the Vice-President Labour Relations (for Hydro One) and the Local Vice-President (for the Society) or their designates.

7.2.4 Duration

The parties agree that, for the most part, Letters of Understanding should contain "sunset clauses". In those cases where such a clause has not been put into a Letter of Understanding, the Society and Hydro One will at some time during collective agreement negotiations determine the status of each such Letter of Understanding (e.g., incorporate in to the collective agreement, delete it, extend it, etc.).

PART III - VOLUNTARY RECOGNITION AGREEMENT

8 VRA AMENDMENTS

A Voluntary Recognition Agreement (VRA) between Ontario Hydro and the Society came into effect on January 14, 1992. A complete text of the VRA between Ontario Hydro and the Society is found in Appendix IV. The VRA, as amended in this Article, is applicable to Hydro One. The VRA shall remain in effect thereafter except for Sections 4.0 and 5.0 of the VRA (outlined in Articles 14 and 15 of this Agreement) which may be terminated by written notice by either party not less than six months prior to the expiry of the Collective Agreement in operation on January 1, 2005 or any subsequent Collective Agreement. On January 6, 2003, Hydro One provided the Society with written notice of termination of paragraphs 4.0 and 5.0 of the VRA.

In the event that either party desires to amend the VRA on or after January 1, 2005, it must notify the other party in writing not less than six months prior to the expiry of the Collective Agreement in effect on January 1, 2005 or thereafter six months prior to the expiration of any subsequent Collective Agreement. In such circumstances the parties will have the right, if either party so chooses, to appoint a mutually agreeable mediator for the purpose of reaching a settlement of

the issues and where there is mutual agreement the mediator shall arbitrate outstanding matters in dispute.

Notwithstanding the above, the parties may mutually agree to amend the VRA at any time.

8.1 Supervisory Employees

For the purposes of this Article, the parties agree that Supervisory positions are those that are not excluded under Article 2.0 above and that satisfy the following criteria:

a) Employees on Salary Schedule 01 who under Plan A "Nature of Supervision" have either Degree 3 (or higher) or its equivalent;

b) Employees on Schedules 02 *or* ***03*** **on** condition they normally supervise other employees.

PART IV - COLLECTIVE AGREEMENT TERM - NO STRIKE/NO LOCKOUT

9 COLLECTIVE AGREEMENT TERM - NO STRIKE/NO LOCKOUT

9.1 This Collective Agreement shall remain in effect from ***July 1, 2007 to March 31, 2013.*** inclusive and, thereafter, shall be renewed automatically from year to year, subject to Section 4.0 of the Voluntary Recognition Agreement (VRA) as amended in the Collective Agreement, unless either Party notifies the other in writing not less than 90 days prior to the expiration of the Collective Agreement that it desires to amend the Collective Agreement.

9.2 No Strike/No Lockout

The Society, employees within the scope of the bargaining unit, and Hydro One are pledged to the effective and efficient operation of Hydro One and they pledge themselves, individually and collectively, to refrain from taking part in strikes, lockouts or sympathy strikes and other interference with work or production during the term of the Agreement.

Nothing in this Collective Agreement is intended to interfere with the exercise of lawful economic sanctions under the *Ontario Labour Relations Act* and the *Canada Labour Code* by any member of the bargaining unit or bargaining units as the case may be or by the Society itself should either party to the Agreement elect to terminate Sections 4.0 and 5.0 of the Voluntary Recognition Agreement.

9.3 Transition Provisions

9.3.1 The following transitional provisions have no application to any person who was not an employee on January 1, 1999.

9.3.2 The term “bargaining unit” for the purposes of Section 9.3 herein (“this Section”) will mean the Society bargaining unit with one of Ontario Power Generation Inc. (Nuclear), Ontario Power Generation Inc. (Non - Nuclear), Hydro One Inc., Independent Market Operator or Electrical Safety Authority.

9.3.3 After December 31, 2002, an employee in a bargaining unit who is declared surplus, who is eligible to exercise rights under *the* “Pre Mix and Match Surplus Declarations” LOU (dated March 31, 1995) or who has recall rights is eligible to apply to posted vacancies in another bargaining unit. Such applicant will be given fair and objective consideration for employment before new hires. A successful applicant will transfer his or her service to the new Employer in accordance with paragraph 9.3.5, below. No employee hired under this provision will be entitled to any relocation or moving expense under the provisions of any Collective Agreement.

9.3.4 An employee in a bargaining unit, to the extent he/she is not subject to other selection – provisions in this Section, may apply for posted vacancies and placement in another bargaining unit as an external applicant on the basis of Article 65.6.3(h).

9.3.5 Any successful applicant to a position in another bargaining unit shall transfer all accumulated service, vacation, seniority, pension, and sick leave credits as set out in Articles 4 (“Service Credits”), 44 (“Sick Leave Plan”) and 64 (“Redeployment**,** Surplus Staff Procedure and Change of Employer”) to the new employer. The employee shall be reimbursed by the former employer for all his or her outstanding accumulated vacation, including current year, bonus, banked and deferred vacation, as applicable under Article 40 (“Vacation”) according to the collective agreement with the former employer. The provisions of this paragraph also apply to employees changing bargaining units pursuant to LOU #6.

9.3.6 Priority consideration for vacancies and service credit transfer under this Article shall only apply where it is reciprocated in the collective agreement of the bargaining unit from which the employee is applying/transferring.

PART V - UNION SECURITY

10 SOCIETY MEMBERSHIP AND DUES DEDUCTION

10.1 Membership in the Society

The Society agrees to permit members to withdraw from membership in the Society.

10.2 Dues Deduction (Rand Formula)

Society dues, as prescribed by the Society Constitution, or an equivalent amount, shall be deducted monthly (or more frequently if agreed) by Hydro One by compulsory payroll deductions from all Society-represented employees and shall be forwarded to the Society on their behalf with a list of appropriate employee information.

The Society confirms it will respect the applicable provisions of the *Ontario Labour Relations Act (RSO 1990*) and the *Canada Labour Code* with respect to bona fide religious convictions or beliefs.

11 PRINCIPLES REGARDING INVOLVEMENT WITH RESPECT TO SUCCESSOR RIGHTS

Consistent with the parties' commitment to deal with issues in an open and co-operative manner with the earliest possible involvement of each party, the parties have developed the following principles and intent:

a) Prior to the finalization of negotiations that could lead to the sale of all or part of the business, privatization of all or part of a Business Unit, the creation of joint ventures or partnerships or other enterprises which could adversely impact on the Society's bargaining rights or the contractual rights of its members, the Society will be consulted to the extent that circumstances reasonably permit. The Society agrees that confidentiality will be maintained.

b) The parties agree to attempt to minimize the negative impacts on Hydro One employees in these circumstances.

c) Hydro One agrees to apprise any external third party involved in negotiations that Hydro One has employees represented by the Society and Hydro One will undertake to provide the Society with an opportunity to present its interests to the third party.

PART VI - DISPUTE RESOLUTION PROCESSES

12 NO DISCRIMINATION

12.1 Human Rights

Every employee has a right to be free of harassment and discrimination in the workplace on the basis of prohibited grounds, as outlined in the Hydro One Human Rights Policy. An employee who has a harassment or discrimination complaint on the basis of these grounds will have access to Hydro One's Human Rights and Harassment Complaints resolution policy process or the grievance process.

Any Society-represented employee involved in Hydro One's Human Rights and Complaints process may consult with and be accompanied by a Society representative if he or she chooses to do so. No record of a complaint will be maintained in an employee's personnel file, except in the case of individuals who have received disciplinary action. Any person against whom a formal complaint is filed must be given particulars of the complaint.

As long as an employee has an active complaint of discrimination or harassment on the basis of prohibited grounds, either under Hydro One's Human Rights and Complaints process or with the Human Rights Commission, the Society will not make such a complaint or Hydro One's process the subject of a grievance on the employee's behalf.

12.2 Union Activity

Hydro One shall not discriminate against an employee on the basis of membership or activity in the Society. An employee who has a complaint of such discrimination shall have the right to seek redress under the Grievance and Arbitration Procedure.

13 EMPLOYEE INDEMNIFICATION

13.1 Hydro One will provide assistance and financial indemnification to an employee who, as a consequence of performing the normal duties of his or her job for Hydro One, is made, or threatened to be made, a party to a civil action or a criminal proceeding (other than for offences under the Criminal Code of Canada) or quasi-criminal proceeding, or other administrative proceeding (such as formal complaint filed with the Human Rights Commission), or is subject to a threat of discipline or actual discipline from an association that is empowered by statute to regulate professional standards. This assistance will include independent legal representation at Hydro One's expense, subject to Hydro One's approval of the employee's choice of his/her counsel.

Notwithstanding the above paragraph, Hydro One will not provide financial indemnification to an employee considered by Hydro One to have acted with dishonesty, bad faith, or with intentional or reckless disregard for the best interests of Hydro One.

An employee who is subject to prosecution under criminal law (Criminal Code of Canada) as a consequence of performing the normal duties of his/her job and found to be not guilty, or against whom charges have been dropped, may receive financial indemnification.

14 VOLUNTARY RECOGNITION AGREEMENT DISPUTES

14.1 Enforcement

The primary method of enforcement of the Voluntary Recognition Agreement shall be pursuant to the grievance and arbitration provision in this Collective Agreement. However, should the Collective Agreement not be in operation or applicable to the dispute, either party shall have the right to refer to final and binding arbitration any differences between the parties arising from the interpretation, application, administration or alleged violation of the Voluntary Recognition Agreement, including any question as to whether a matter is arbitral.

Subject to the conditions of this Agreement, if a mediator or arbitrator is not appointed within 30 days of a matter being referred to mediation and/or arbitration, either the Society or Hydro One shall have the right to refer the matter to the Minister of Labour (provincial or federal) or the Chief Justice of the Ontario Court of Justice and the Minister or Chief Justice shall appoint a mediator and/or arbitrator. The arbitrator will have the power accorded under the *Ontario Labour Relations Act* and the *Canada Labour Code*.

15 HEALTH AND SAFETY DISPUTES

15.1 Except for disputes involving the principles set out in the Tripartite Agreement on Joint Health and Safety Committees, all other disputes involving allegations that Hydro One has violated the provisions of the *Occupational Health and Safety Act (OHSA)* will not be subject to the provisions of the grievance/arbitration procedure except where provided for by the legislation itself. The parties will attempt to resolve such disputes at the lowest level possible. Failing resolution, the dispute may be forwarded to the Ministry of Labour for final resolution.

15.2 Disputes which involve interpretations about Sections of the OHSA, or any of its associated regulations will be resolved in accordance with the procedure set out in the joint agreement *"Handling Legislative and Regulatory Impasses Pertaining to the Occupational Health and Safety Act and its Associated Regulations"* dated December 5, 1991.

16 COMPLAINT AND GRIEVANCE/ARBITRATION PROCEDURE

16.1 Preamble and Principles of Operation

The following procedure for dispute resolution consists of three elements: a complaint process, a grievance procedure and an arbitration process. These processes will be used by the Parties in order to resolve complaints and grievances submitted by Society-represented staff, the Society, or Hydro One unless the parties have expressly agreed elsewhere in this Agreement on alternate dispute resolution processes to limit the scope of the grievance/arbitration procedure.

Early discussions and resolutions at the lowest level possible are encouraged because this leads to addressing issues before a grievance is lodged. The Parties also recognize that early and open discussions are key to maintaining a positive working relationship.

The Parties recognize the need for open and honest discussions at all levels of the complaint and grievance process. These discussions will allow for a common

understanding of all the facts and will enhance the chance of a mutually acceptable resolution.

This process should have the flexibility to respond to the advantages gained through a problem-solving approach to dispute resolution.

This process is designed to be simple, efficient, and understandable for all parties involved.

16.2 Definitions

a) Employee Complaint

An employee complaint is a claim of unfair treatment that an employee has requested the Society to present on the employee's behalf. An employee complaint which does not meet the criteria of an employee grievance shall not be subject for the grievance/arbitration procedure.

b) Employee Grievance

An employee grievance is defined as any dispute between Hydro One and the Society arising from the application, administration, interpretation or alleged violation of the Collective Agreement, or unreasonable exercise of Management discretion in the administration and application of the collective agreement. An employee grievance shall be filed at Step 2, normally following consideration of an employee complaint at Step 1.

c) Group Grievance

A Group grievance is defined as any dispute between Hydro One and the Society arising from the application, administration or alleged violation of the Collective Agreement, or unreasonable exercise of Management discretion in the administration and application of the collective agreement relating to the same dispute by more than one employee. A Group grievance shall be filed at Step 2. Grouped complaints will normally be considered at the Complaint Step if the employees report to a single supervisor.

d) Policy Grievance

A Policy grievance is defined as any dispute between Hydro One and the Society arising from matters of application, administration, interpretation, or alleged violation of the Collective Agreement. A policy grievance shall be filed at Step 2, and must be filed within 60 days after the circumstances giving rise to the grievance have come or ought to have reasonably come to the attention of the Society.

e) Management Grievance

Hydro One may present to the Society any complaint with respect to the conduct of the Society. If such a complaint is not resolved, it may be treated as a grievance and referred to arbitration under the provisions of this Article.

16.3 Scope Notes – Grievance and Arbitration

16.3.1 Grievances concerning personal performance appraisals which are not related to the interpretation or application of Article 19 are not arbitral. These

grievances will be processed up to and including step 2 of the grievance process.

If a grievance concerning an employee's performance appraisal cannot be resolved by the step 2 Committee, the performance assessment, which includes the employee's comments, will stand as a record of that year's appraisal.

16.3.2 Grievances related to selections based upon Article 65.6.4 may be processed through the grievance/arbitration process. If the arbitrator rules the process for selection was unfair, the arbitrator is limited to ordering a new selection process take place.

16.3.3 Disputes concerning Article ***90*** relating to the Occupational Health and Safety Act or Part II of the Canada Labour Code will normally be referred to the Ministry of Labour consistent with Article 15.

16.3.4 Both Hydro One and the Society have access to the grievance/arbitration procedure for disputes arising from the application of Part II (Recognition).

16.3.5 The grievance/arbitration procedure may be used to challenge any unreasonable, arbitrary or bad faith action taken by Hydro One which results in the exclusion of any employee or position from the bargaining unit. The Parties will attempt to resolve disputes expeditiously. The Society may initiate an unresolved dispute as a Policy Grievance.

16.4 Timeliness\

The grievance procedure shall proceed without unnecessary delay. It is recognized that in some cases strictly enforced time limitations may interfere with a mutually acceptable process of fact-finding or problem resolution. However, either Party may invoke a time limitation upon five (5) days' written notice to the other Party. Except by mutual agreement, time limits for initiating a complaint/grievance, however, must be adhered to.

16.5 Step 1: Employee Complaint

a) The Society will file an employee's complaint with the local line manager within 30 working days of the date the employee should reasonably have been aware of the action or decision giving rise to the complaint. The Society will provide a form outlining the grievor's complaint, proposed resolution and will identify the employee's society representative.

b) An employee's complaint must normally be raised with the employee's supervisor and/or Society delegate and every effort should be made to resolve it informally. Hydro One will provide independent facilitation where the Parties agree that this is a reasonable approach to resolving the complaint.

c) Where mutually agreeable, the Society may initiate an employee grievance arising from disciplinary suspension or discharge directly at Step 2.

d) Local management and the Society representative will meet to attempt resolution within ten (10) working days of the date that the complaint is filed. Where mutually agreeable, the employee may attend the Step 1 meeting. Any resolution at Step 1 will be without prejudice and will not constitute a precedent in any other matter between the Parties except by written agreement.

16.6 Step 2: Meetings Of The Standing Grievance Settlement Committee ("GSC")

a) The Society may file an employee's intent to grieve, with the grievor's manager, within ten (10) working days of the step 1 meeting. The Society will file all Step 2 grievances within 30 working days from the 1st Step meeting. A policy grievance shall be initiated at step 2. The grievance form will indicate the articles in issue, outline the grievance and wherever possible, propose a resolution.

b) Where a grievance is based upon discrimination or harassment, the parties will attempt to incorporate the following elements into the fact-finding :
i) the use of a neutral investigator agreeable to both parties;
ii) consideration of reports from preceding investigations;
iii) interviews with affected employees;
iv) mediation, if deemed appropriate by the parties upon consent of the affected employees.

c) The parties will form a standing grievance settlement committee that will regularly schedule one meeting day every other month to attempt settlement of the grievance before it. Each party will appoint 3 standing members to the GSC. Each GSC shall comprise 1 standing member from each of the parties. These appointees must be representatives with decision-making authority.

d) GSC hearing dates shall be determined and published annually on a calendar basis.

e) Grievances heard by the GSC may be resolved by written agreement of the GSC. Unresolved grievances may be referred to expedited arbitration.

16.7 Grievance Arbitration

16.7.1 Expedited Arbitration

A. Subject to Subsection 16.7.2, either Party may refer an unresolved grievance to expedited arbitration within 10 working days following the end of the Step 2. Expedited Arbitration shall be by a single arbitrator chosen by mutual agreement from the list at Article 16.7.5.
B. Multiple cases will be heard on each day of expedited arbitration.
C. Written briefs will be exchanged between the parties 1 week in advance of the expedited arbitration. Copies of the briefs will be forwarded to the arbitrator 1 week in advance of the hearing.
D. The arbitrator will rely upon the briefs as much as possible and witnesses will only be called if required by the arbitrator.
E. Expedited arbitrations will be held in alternating months in which the GSC hears grievances.

16.7.2 Regular Arbitration

A. Unless the parties agree that expedited Arbitration is appropriate, Grievances based upon i) discharge/discipline, ii) harassment or discrimination, iii) policy grievances or iv) any other grievance the parties agree is not suitable for expedited arbitration, will be referred to a mutually agreeable arbitrator as per Article 16.7.5. Either party may refer an unresolved grievance to a single arbitrator within 10 days of the Step 2

meeting. Regular arbitration shall be scheduled within 60 days of the referral to arbitration.

16.7.3 General

A. Each Party shall assume its own costs of the arbitration proceedings and shall share equally the cost of the arbitrator.

B. An arbitrator shall consider any difference which arises between the parties relating to the interpretation, application or administration of this Agreement, including any question as to whether a matter is arbitrable, or where an allegation is made that this agreement has been violated. An arbitrator shall also consider any matter of interpretation, application, and administration of policy and practice as may be referred to him/her by employee grievance. An arbitrator shall consider only such evidence as is presented to him/her by representatives of Hydro One or the Society.

C. The arbitrator shall have the power to settle or decide such matters as are referred to him/her in a fair and equitable manner, and the arbitrator's decision shall be final and binding. An arbitrator shall not have the power to amend or terminate this Agreement, policies, or procedures save only any policies and procedures which may conflict with the terms of this Agreement.

D. If mutually agreeable, the arbitrator may be requested to act as a mediator prior to formally commencing the arbitration.

E. All arbitration decisions shall be delivered to the parties within 10 days of the arbitration hearing

16.7.4 Arbitrators

The following individuals are to be used as arbitrators if mutually agreed to:

Michel Picher
Jane Devlin
Jules Bloch
Rob Herman
Kevin Burkett

17 DISCIPLINE AND DISCHARGE

17.1 No employee, except as noted below, shall be disciplined or discharged without just cause.

When disciplining or discharging probationary employees for just cause, it is recognized that the probationary period is an extension of the selection process and that these employees have short service. Therefore, the threshold for discipline and discharge may be less than that of a regular employee in similar circumstances.

17.2 An employee is entitled, prior to the imposition of discipline or discharge, to be notified at a meeting with Management of the reasons for considering such action, unless he/she is a danger to himself/herself or others. A Society representative may be present at such a meeting if the employee so desires. If the employee does wish representation, the Unit

Director or the Society Office will be advised in advance by Management of the time and place of the meeting.

17.3 Where an employee is required to participate in an interview in circumstances where discipline is likely to follow for such employee, the employee shall be advised of his or her right to have a Society representative present, and to have such a representative present during the interview if he or she chooses.

17.4 Disciplinary penalties resulting in a suspension without pay will not be imposed until a final decision (agreement between the Society and Hydro One or an arbitrator's decision) has been reached.

17.5 Employment File

a) Documents communicating discipline and discharge will be maintained in the employee's official employment file (normally 901 file).

b) Unless otherwise agreed to, after documents communicating discipline have been on an employee's file for a maximum of two years, and there have been no further disciplinary occurrences, then the documents communicating discipline will be removed

c) Employees shall be allowed access to their own personnel files. Employees should submit the written request to their supervisor. Review of the file shall be carried out in the presence of the supervisor or human resources contact. Additions or deletions to the file shall be made only with the approval of the supervisor and the human resource contact.

18 PRINCIPLE AND PROCESS OF PRIOR INVOLVEMENT IN JURISDICTIONAL ISSUES/DISPUTES

18.1 Hydro One should advise the Society and provide an opportunity for its involvement at the appropriate organizational level (e.g., Hydro One, Business Unit, Division, Station) prior to making any final decision which could adversely affect the Society's jurisdiction.

The Society's jurisdiction may be adversely impacted by an organizational or operational changes, including technological changes, workload changes, and business process re-engineering. The Society's jurisdiction is adversely impacted by any assignment of functions customarily done by Society-represented employees to persons or employees outside of its bargaining unit and/or reduces the proportion of work customarily performed by Society-represented employees relative to that done by persons or employees outside of its jurisdiction.

18.2 Prior to making a final decision that could adversely impact the Society's jurisdiction, at the request of either party, Hydro One will establish a joint team with the Society which will review relevant facts and issues. In the event that the jurisdiction of another union is affected by this decision, the Society and Hydro One will strive to include a representative of this union in the review team. The criteria considered by the joint or tripartite review team will include the following:

- representational rights
- skill and training
- safety

- economy and efficiency
- past practice

18.3 The parties agree to make their best efforts to reach consensus on issues affecting the Society's jurisdiction which will form the basis of recommendations to Senior Management.

18.4 In the event that consensus is not reached on issues affecting the Society's jurisdiction or Senior Management rejects the joint/tripartite team's recommendation(s), Hydro One will make the final decision and will provide written rationale for the decision to the Society.

18.5 The principle and process set out in 18.1 to 18.4 are not grievable with the exception of Hydro One's final decision. The recommendations of joint tripartite teams are without prejudice and cannot be relied upon at grievance/arbitration or before any labour relations board.

19 PERFORMANCE APPRAISAL FEEDBACK AND ADVANCED WARNING OF REDUCED PERFORMANCE PAY STANDING

19.1 Principles

19.1.1 Supervisors are expected to ensure all employees understand what is expected of them, encourage ambitious goal setting, stress accountability for results, and tolerate honest mistakes but not poor performance.

19.1.2 The Performance Appraisal process will be conducted in an atmosphere of mutual respect and empathy to encourage a positive two-way communication session. The employee should be given adequate notice and time to prepare.

19.1.3 The supervisor will endeavour to provide recognition to employees commensurate with contribution and performance. Performance expectations should be guided by the job document, work program of the unit and the employee's length of service in the job.

19.1.4 The supervisor should communicate on an ongoing basis and counsel the employee toward improved performance. Also, opportunities for improvement, training, performance counselling, assistance and sufficient opportunity and time to raise performance to the level required, should be part of the building blocks for the future.

19.1.5 The employee is responsible for recognizing that a problem exists and making a joint commitment to improve performance, or to jointly look at other alternatives, such as job skill match, etc.

19.2 Every employee has the right to an annual assessment with written feedback of his/her work over the preceding twelve (12) months.

19.3 Employee must be provided with a written record of the performance appraisal. Employees should receive written confirmation that the performance appraisal has taken place, and a statement of the employee's ***step standing*** as of the next ***"anniversary" progression*** date.

19.4 ***Performance Management***

a. If an employee fails to make satisfactory progress, his/her progression may be withheld for a period of six months.

b. In taking this action, the Employer shall provide the employee with one month's notice with written reasons for withholding the progression and what is required to rectify the unsatisfactory performance.

c. The performance of an employee whose progression has been withheld as above will be reviewed within six months. If progress and general performance are found to be satisfactory, progression shall be granted and the review date becomes the employee's new anniversary date. However, if progress and general performance are not satisfactory, the employee shall be either transferred or dismissed.

d. If six months after the review his/her performance has continued to be satisfactory, he/she may be granted the next step in his/her progression. This will then re-establish his/her original progression status.

20 ROLE OF SUPERVISORS

20.1 As members of Hydro One's managerial staff, supervisory employees have a role to play in the resolution of disputes in their work units before they reach the grievance/arbitration procedure. In the event that a dispute reaches the grievance/arbitration procedure, the Society agrees not to discriminate against supervisors who represent Management in Society grievances.

20.2 The Society will exclude supervisors directly involved in a particular grievance from the decisions on the referral of the grievance through the grievance/arbitration procedure. Supervisors will not act on behalf of the Society in matters associated with a particular grievance where the grievance has been lodged by another member(s) who reports to the particular supervisor.

20.3 Society Representatives

A Society representative will be granted reasonable time off from normal duties and have normal base earnings maintained while acting as a Society representative in any of the steps of the grievance procedure or when required by Management to be a participant in arbitration proceedings under Articles 16, 19, and 64. Requests for time off will be made to Labour Relations, Hydro One Human Resources.

PART VII – PENSION AND INSURANCE

21 LIFE INSURANCE

21.1 The benefits and terms and conditions of the benefit entitlement for group life, living benefit and spousal life insurance for employees are as described in: the Collective Agreement; the brochure entitled "Group Life Insurance, Living Benefit and Spousal Life Insurance, updated May 31, 2000". These documents, by reference, form part of the Collective Agreement. The benefits and terms and conditions of benefit entitlement as described in the above documents can be changed by mutual consent only.

21.1.1 The employee will be required to submit evidence of insurability if a re-election results in total increased insurance coverage.

21.1.2 Any re-election shall become effective on the January 1st following the year in which the re-election is made or on the date of approval by the insurer of any required evidence of insurability, whichever is later.

21.2 Life Insurance Options

Option	**Basic Term Insurance**[1]	**Additional Term Insurance**[2]
I	Two Times Base Salary	Nil
II	Two Times Base Salary	One Times Base Salary

21.3 An employee is eligible to purchase additional term life insurance in blocks of $10,000 to a maximum of $150,000 at no cost to the employer. ***Effective April 1, 2008, the Employer will no longer subsidize the cost of optional life Insurance.***

21.4 An employee who meets the following criteria shall be eligible to cash out 50% of his/her total claim value to a maximum of $50,000.

Criteria:

- the illness must be terminal with death likely to occur within 24 months;
- Hydro One's consent is required;
- the consent of the employee;
- the beneficiary must have reached the age of majority; and
- the employee must be competent and able to understand a transaction of this nature.

Payments must be processed as a loan and interest charged to avoid making the payment a taxable benefit to the employee.

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[1] Basic Term Insurance is composed of term insurance equal to base annual earnings raised to the next $500.00 and multiplied by 2.

[2] Additional Term Insurance is the optional term insurance which an employee may elect in addition to the basic insurance coverage. It is equal to base annual earnings raised up to the next $1,000.00.

When death occurs, the advance payment plus accrued interest is deducted from the claim value.

21.5 Spousal Insurance

21.5.1 Only spouses of active employees are eligible.

21.5.2 Insurance is available in units of $10,000 to a maximum of $150,000 (or 15 units).

21.5.3 The entire cost, including administration costs, will be paid by the employee.

21.5.4 The participation rate will have to be 20-30% otherwise proof of insurability will be required.

21.5.5 The premium rate will be different from the rate for employees, and will be experience rated. The premiums would then vary from year to year based on the experience of the previous year.

21.6 Dependent Insurance

21.6.1 Effective March 1, 2002 employees may purchase life insurance for their eligible dependents in the amounts of either $10,000 or $25,000 as detailed by the Insurance Carrier and at no cost to the employer.

22 PENSION PLAN

The Hydro One Pension Plan (Registration #1059104) constitutes the present Pension Plan and forms part of this collective agreement. The provisions of the Pension Plan are generally described in the brochure “A Guide to your Hydro One Pension Plan” (June 23, 2002).

Changes to the Pension Plan affecting Society-represented members of the plan, other than legislative changes, shall be made only upon mutual consent. It is agreed that normal administrative matters such as changing financial advisors are not considered to be changes to the Pension Plan, subject to any understanding, agreement or decision to the contrary with the PWU.

22.1 The employer shall not request legislation, regulations, or Order-in-Council approval or make rules which would change pension benefits, unless upon mutual consent. Moreover, the employer shall not seek legislation to change access to surplus unless upon mutual consent.

22.2 Any changes to actuarial assumptions used for the purpose of filing a funding valuation shall be discussed with the Society prior to filing. The Society reserves the right to challenge the actuarial assumptions used for such filing.

22.3 Buy-Back of Hydro One and External Service

The following shall apply after the Pension Plan Rules are changed:

a) Employees will be able to purchase the following service on an actuarial basis at no cost to Hydro One, provided the employee provides evidence of such service satisfactory to Hydro One:

i) summer and co-op students ;
ii) casual construction;
iii) temporary employees;
iv) leaves of absences;
v) pregnancy/parental leaves;
vi) broken service;
vii) external service (see (b) below)

(iv), (v) and (vi) above are enhancements to current provisions.

b) This provision will be subject to restrictions of the *Income Tax Act* (Canada*)* and all applicable provincial or federal pension legislation. (For example, external service prior to 1992 can only be purchased if there was a reciprocal agreement with the former Employer in existence at the time and still exists.)

c) For the purposes of this section, “service” shall mean service with Ontario Hydro prior to April 1, 1999 or service with Ontario Hydro’s successors after April 1, 1999.

22.4 Retirement Bonus

Employees who have completed 10 years or more of continuous employment shall be given, upon retirement, a cash bonus equal to one month’s pay. The retirement bonus may be paid in cash or by transfer to an employee’s Registered Retirement Savings Plan (RRSP) , at the employee’s option.

22.5 Pension Committee

The parties agree to establish a committee to:

- provide a forum for the discussion of Society issues and concerns related to the operations of the pension administration unit;
- provide a forum for the discussion of contractual obligations (e.g. the introduction of new amendments to the plan, discussion of actuarial assumptions used for funding valuations);
- provide the Society with information on pension related issues that may be of assistance in educating their members;
- provide a forum to review valuations filed with FSCO or valuations to be used to trigger increased employee contributions and annual pension plan financial statements that have been approved by Hydro One.

In order to fulfill its purpose, the committee members and resource persons will have access to reasonable pension plan and pension fund information, subject to the understanding that certain confidential information will not be available, and any confidential information that is supplied will be maintained in strict confidence by the committee/resource persons.

The Committee will be comprised of two Society representatives and two Employer representatives. Each party shall have the right to have a reasonable number of resource persons attend the meeting. The Committee shall meet twice per year.

22.6 Society members of the Hydro One Pension Plan, whose pension income as a pensioner will exceed the limits prescribed by the Income Tax Act (ITA) for pension paid from a registered pension plan, are eligible for the Supplementary Payment Schedule (SPS). The SPS tops up the amount one receives from the Hydro One Pension Plan to the amount one would receive if there were no ITA limits.

22.7 Hydro One shall exercise reasonable efforts to establish reciprocal transfer agreements with its successor companies or companies with whom it forms partnerships or joint ventures.

22.8 Plan Formula

(This Section does not apply to regular employees hired on or after November 17, 2005***)***.

Effective January 1, 2004, the CPP integration adjustment factor shall be reduced from .625% to .500%. Employees' contributions shall increase by .5% if and when the assets fall below 106% of the liabilities based upon a solvency valuation and shall continue until the assets are at or above 106% based upon a solvency valuation, and shall thereafter be in place or not based upon whether the assets are below, or at or above, 106% of the liabilities based upon a solvency valuation.

Clarity Note #1:

Hydro One may trigger the provision for increasing employee contributions as described above ("provision") by filing a valuation with the Financial Services Commission of Ontario (FSCO). Where it does so, it is not required to exceed the frequency of filing required by law. Hydro One is not obligated to trigger the provision by a FSCO filing only, and, instead, may do so by an internal valuation. Where Hydro One elects to proceed by an internal valuation, it must do so annually and must share any valuation with the Society for comment if it is relying upon the valuation to cause employee contributions to change. If the Society believes the valuation to be in material error and Hydro One disagrees, the Society may cause a review of the valuation by an independent actuary whose opinion on that complaint shall be final and binding. The independent actuary mutually selected by the parties, or if in disagreement, appointed by a rights arbitrator under the collective agreement, may conduct his/her review in any manner he/she considers appropriate of his/her sole discretion. Hydro One shall pay the actuary's fees and disbursements. However, if the independent actuary concludes, in his/her sole discretion, that the Society's objections were unreasonable, the actuary may direct the Society to reimburse Hydro One for all or a portion of the fees and disbursements invoiced by the actuary.

Clarity Note #2:

The change in the CPP integration factor will apply to all of the established service of a Society-represented member who retires after the effective date provided that some portion of such Society-represented established service occurred after the effective date of the change in the CPP integration factor.

22.9 Pension Plan Provisions for Regular Employees hired on or after November 17, 2005

The following provisions apply to regular employees hired on or after November 17, 2005:

Benefit	Provision
Benefit Formula	2% per year to maximum of 35 years
Final Average Earnings	Highest 60 consecutive months
Bridge Benefit	None
Integrated with CPP	Yes (CPP integration adjustment factor = 0.625%)
Indexing	75% of Ontario CPI (maximum of 5%, no carryover)
Employee Contributions	4%/6%
Normal Retirement	Age 65
Early Unreduced Retirement	Rule of 85, based on Established Service.
Early Reduced Retirement	Age 55
Survivor Benefit	66.67%
Membership Eligibility	1st of month following 3 months of continuous service. No buy back of these three months.
Vesting	1 year
Post Retirement Benefit Eligibility	2 years of pension plan membership and 10 years continuous service with Hydro One

Regular employees hired on or after November 17, 2005 may opt not to enrol in the pension plan. They may elect an additional 3.5% of base earnings in lieu of pension plan participation.

All provisions of the Pension Plan and this Article apply to regular employees hired on or after November 17, 2005 except Section 22.8 ("Plan Formula") and as otherwise specified in this Section.

The Employer will ensure affected employees are notified of their election options, including the default selection and the fact that the default option does not afford the employee the option to buy-back service. The Employer will copy the employee's Society Unit Director on this notice.

PART VIII – SALARY

23 SALARY SCHEDULES

23.1 Salary rates shall be in accordance with Salary Schedules 01, 02 and 03 that are part of this Agreement.

23.2 The salary schedules shall be increased ***effective April 1, 2008 by 3.0%, April 1, 2009 by 3.0%, April 1, 2010 by 3.0%***, ***April 1, 2011 by 2.5% and by 2.5% April 1, 2012.***

24 ESCALATOR CLAUSE

24.1 In the event that Hydro One and the Society negotiate a Collective Agreement for a term of more than one year, a Cost of Living Adjustment (COLA) escalator clause shall become part of such an Agreement and shall be applicable to all employees covered by that Agreement.

24.2 ***For the term of this Collective Agreement the escalator clause will only be applicable in the third (i.e. April 1, 2010 – March 31, 2011), fourth (i.e. April 1, 2011-March 31, 2012) and fifth (i.e. April 1, 2012-March 31, 2013) years of the contract. A year in which the escalator clause operates shall be termed an "applicable year". The escalator clause is designed to generate a maximum of one wage increase at the end of each applicable year (i.e. March 31 2011, March 31, 2012 and March 31, 2013, respectively) to a maximum of 2.0% (per applicable year).***

In each applicable year the following formula shall apply:

(a) Activation Point

For the third year:

A 3.0 % increase in the CPI for Ontario (All Items - 1992 = 100) over that published in March 2010 (i.e., the index for February 2010) will activate the Escalator Clause.

For the fourth year:

A 2.5 % increase in the CPI for Ontario (All Items - 1992 = 100) over that published in March 2011 (i.e., the index for February 2011) will activate the Escalator Clause.

For the fifth year:

A 2.5 % increase in the CPI for Ontario (All Items - 1992 = 100) over that published in March 2012 (i.e., the index for February 2012) will activate the Escalator Clause.

(b) For a full one percent increase in the CPI beyond the activation point in an applicable year, all Wage and Salary Schedules will be adjusted at the end of the applicable year by an amount which increases rates in effect at that time by one percent. Concurrent with this increase, a new activation point

will be established at a level one percent above the previous activation point.

(c) Any adjustment in the Wage and Salary Schedules necessitated by a change in the CPI, shall be effective at the end of the applicable year. A lump sum payment for months one percent above the activation point will be made retroactive to the first payroll period of the fiscal month following the publication of the CPI which activated the payment. The payment will be made in the form of a lump sum effective on March 31st of the applicable year.

All Escalator Clause increases will be applied in accordance with the current Methods of calculating.

01
07

Hydro One

SALARY SCHEDULE 01

35 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	MP2	MP3	MP4	MP5	MP6
9	1,638	1,747	1,862	1,986	2,117
8	1,589	1,694	1,806	1,926	2,054
7	1,540	1,642	1,750	1,866	1,990
6	1,491	1,589	1,695	1,807	1,927
5	1,441	1,537	1,639	1,747	1,863
4	1,376	1,467	1,564	1,668	1,778
3	1,310	1,397	1,490	1,588	1,694
2	1,229	1,310	1,397	1,490	1,588
1	1,147	1,223	1,303	1,390	1,482

02
07

Hydro One

SALARY SCHEDULE 02

37.5 - HOUR SALARY SCHEDULE

Dollars Per Week

STEP	FMP09	FMP10	FMP11	FMP12	FMP13	FMP14	FMP15	FMP16
9	1,448	1,544	1,646	1,755	1,872	1,995	2,128	2,268
8	1,404	1,498	1,596	1,702	1,816	1,935	2,064	2,200
7	1,361	1,451	1,547	1,650	1,759	1,875	2,000	2,132
6	1,317	1,405	1,498	1,597	1,703	1,815	1,936	2,064
5	1,274	1,359	1,448	1,544	1,647	1,756	1,873	1,996
4	1,216	1,297	1,382	1,474	1,572	1,676	1,787	1,905
3	1,158	1,235	1,317	1,404	1,497	1,596	1,702	1,815
2	1,086	1,158	1,234	1,316	1,404	1,496	1,596	1,701
1	1,013	1,081	1,152	1,229	1,310	1,397	1,490	1,588

03
07

Hydro One

SALARY SCHEDULE 03

40 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	TMS01	TMS02	TMS03	TMS04	TMS05
9	1,441	1,536	1,638	1,747	1,862
8	1,398	1,490	1,589	1,694	1,806
7	1,354	1,444	1,540	1,642	1,750
6	1,311	1,398	1,491	1,589	1,695
5	1,268	1,352	1,441	1,537	1,639
4	1,210	1,290	1,376	1,467	1,564
3	1,153	1,229	1,310	1,397	1,490
2	1,081	1,152	1,229	1,310	1,397
1	1,009	1,075	1,147	1,223	1,303

01
08

Hydro One

SALARY SCHEDULE 01

35 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	MP2	MP3	MP4	MP5	MP6
9	1,687	1,799	1,918	2,046	2,181
8	1,637	1,745	1,860	1,984	2,115
7	1,586	1,691	1,803	1,923	2,050
6	1,535	1,637	1,745	1,861	1,984
5	1,485	1,583	1,688	1,800	1,919
4	1,417	1,512	1,611	1,718	1,832
3	1,350	1,440	1,534	1,636	1,744
2	1,265	1,350	1,438	1,534	1,635
1	1,181	1,260	1,343	1,432	1,526

02
08

Hydro One

SALARY SCHEDULE 02

37.5 - HOUR SALARY SCHEDULE

Dollars Per Week

STEP	FMP09	FMP10	FMP11	FMP12	FMP13	FMP14	FMP15	FMP16
9	1,491	1,590	1,695	1,808	1,928	2,055	2,192	2,336
8	1,446	1,543	1,644	1,753	1,870	1,993	2,126	2,266
7	1,401	1,495	1,593	1,699	1,812	1,932	2,060	2,196
6	1,357	1,447	1,543	1,645	1,754	1,870	1,994	2,126
5	1,312	1,399	1,492	1,591	1,697	1,808	1,929	2,056
4	1,252	1,336	1,424	1,518	1,619	1,726	1,841	1,962
3	1,193	1,272	1,356	1,446	1,542	1,644	1,753	1,869
2	1,118	1,193	1,271	1,356	1,446	1,541	1,644	1,752
1	1,044	1,113	1,187	1,265	1,350	1,438	1,534	1,635

03
08

Hydro One

SALARY SCHEDULE 03

40 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	TMS01	TMS02	TMS03	TMS04	TMS05
9	1,484	1,582	1,687	1,799	1,918
8	1,440	1,535	1,637	1,745	1,860
7	1,395	1,487	1,586	1,691	1,803
6	1,351	1,440	1,535	1,637	1,745
5	1,306	1,392	1,485	1,583	1,688
4	1,247	1,329	1,417	1,512	1,611
3	1,187	1,266	1,350	1,440	1,534
2	1,113	1,187	1,265	1,350	1,438
1	1,039	1,107	1,181	1,260	1,343

01
09

Hydro One

SALARY SCHEDULE 01

35 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	MP2	MP3	MP4	MP5	MP6
9	1,738	1,853	1,975	2,107	2,246
8	1,686	1,798	1,916	2,044	2,179
7	1,633	1,742	1,857	1,981	2,111
6	1,581	1,687	1,798	1,917	2,044
5	1,529	1,631	1,738	1,854	1,976
4	1,460	1,557	1,659	1,770	1,887
3	1,390	1,483	1,580	1,686	1,797
2	1,303	1,390	1,482	1,580	1,684
1	1,216	1,297	1,383	1,475	1,572

02
09

Hydro One

SALARY SCHEDULE 02

37.5 - HOUR SALARY SCHEDULE

Dollars Per Week

STEP	FMP09	FMP10	FMP11	FMP12	FMP13	FMP14	FMP15	FMP16
9	1,536	1,638	1,746	1,862	1,986	2,116	2,257	2,406
8	1,490	1,589	1,694	1,806	1,926	2,053	2,190	2,334
7	1,444	1,540	1,641	1,750	1,867	1,990	2,122	2,262
6	1,397	1,491	1,589	1,694	1,807	1,926	2,054	2,190
5	1,351	1,441	1,536	1,638	1,747	1,863	1,987	2,118
4	1,290	1,376	1,467	1,564	1,668	1,778	1,896	2,021
3	1,229	1,310	1,397	1,490	1,589	1,693	1,806	1,925
2	1,152	1,228	1,309	1,396	1,489	1,587	1,693	1,805
1	1,075	1,147	1,222	1,303	1,390	1,482	1,580	1,684

03
09

Hydro One

SALARY SCHEDULE 03

40 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	TMS01	TMS02	TMS03	TMS04	TMS05
9	1,529	1,630	1,738	1,853	1,975
8	1,483	1,581	1,686	1,798	1,916
7	1,437	1,532	1,633	1,742	1,857
6	1,391	1,483	1,581	1,687	1,798
5	1,345	1,434	1,529	1,631	1,738
4	1,284	1,369	1,460	1,557	1,659
3	1,223	1,304	1,390	1,483	1,580
2	1,147	1,222	1,303	1,390	1,482
1	1,070	1,141	1,216	1,297	1,383

01
10

Hydro One

SALARY SCHEDULE 01

35 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	MP2	MP3	MP4	MP5	MP6
9	1,790	1,909	2,035	2,170	2,313
8	1,736	1,852	1,974	2,105	2,244
7	1,682	1,794	1,913	2,040	2,175
6	1,629	1,737	1,852	1,975	2,105
5	1,575	1,680	1,790	1,910	2,036
4	1,504	1,604	1,709	1,823	1,943
3	1,432	1,527	1,628	1,736	1,851
2	1,342	1,432	1,526	1,628	1,735
1	1,253	1,336	1,424	1,519	1,619

02
10

Hydro One

SALARY SCHEDULE 02

37.5 - HOUR SALARY SCHEDULE

Dollars Per Week

STEP	FMP09	FMP10	FMP11	FMP12	FMP13	FMP14	FMP15	FMP16
9	1,582	1,687	1,798	1,918	2,045	2,180	2,325	2,479
8	1,534	1,636	1,744	1,860	1,984	2,115	2,255	2,404
7	1,487	1,586	1,690	1,803	1,923	2,049	2,186	2,330
6	1,439	1,535	1,636	1,745	1,861	1,984	2,116	2,255
5	1,392	1,485	1,583	1,688	1,800	1,918	2,046	2,181
4	1,329	1,417	1,511	1,611	1,718	1,831	1,953	2,082
3	1,265	1,350	1,439	1,534	1,636	1,744	1,860	1,983
2	1,186	1,265	1,349	1,438	1,534	1,635	1,744	1,859
1	1,107	1,181	1,259	1,342	1,432	1,526	1,628	1,735

03
10

Hydro One

SALARY SCHEDULE 03

40 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	TMS01	TMS02	TMS03	TMS04	TMS05
9	1,575	1,678	1,790	1,909	2,035
8	1,527	1,628	1,736	1,852	1,974
7	1,480	1,578	1,682	1,794	1,913
6	1,433	1,527	1,629	1,737	1,852
5	1,386	1,477	1,575	1,680	1,790
4	1,323	1,410	1,504	1,604	1,709
3	1,260	1,343	1,432	1,527	1,628
2	1,181	1,259	1,342	1,432	1,526
1	1,102	1,175	1,253	1,336	1,424

01
11

Hydro One

SALARY SCHEDULE 01

35 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	MP2	MP3	MP4	MP5	MP6
9	1,835	1,957	2,086	2,224	2,371
8	1,780	1,898	2,023	2,158	2,300
7	1,725	1,839	1,960	2,091	2,229
6	1,670	1,781	1,898	2,024	2,158
5	1,614	1,722	1,835	1,957	2,087
4	1,541	1,644	1,752	1,869	1,992
3	1,468	1,565	1,668	1,780	1,897
2	1,376	1,468	1,564	1,668	1,778
1	1,284	1,370	1,460	1,557	1,660

02
11

Hydro One

SALARY SCHEDULE 02

37.5 - HOUR SALARY SCHEDULE

Dollars Per Week

STEP	FMP09	FMP10	FMP11	FMP12	FMP13	FMP14	FMP15	FMP16
9	1,621	1,729	1,843	1,966	2,096	2,234	2,383	2,540
8	1,573	1,677	1,788	1,907	2,034	2,167	2,312	2,464
7	1,524	1,626	1,733	1,848	1,971	2,100	2,240	2,388
6	1,475	1,574	1,677	1,789	1,908	2,033	2,169	2,312
5	1,427	1,522	1,622	1,730	1,845	1,966	2,097	2,236
4	1,362	1,453	1,548	1,651	1,761	1,877	2,002	2,134
3	1,297	1,383	1,475	1,573	1,677	1,788	1,907	2,032
2	1,216	1,297	1,382	1,474	1,572	1,676	1,787	1,905
1	1,135	1,210	1,290	1,376	1,468	1,564	1,668	1,778

03
11

Hydro One

SALARY SCHEDULE 03

40 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	TMS01	TMS02	TMS03	TMS04	TMS05
9	1,614	1,720	1,835	1,957	2,086
8	1,566	1,669	1,780	1,898	2,023
7	1,517	1,617	1,725	1,839	1,960
6	1,469	1,566	1,670	1,781	1,898
5	1,420	1,514	1,614	1,722	1,835
4	1,356	1,445	1,541	1,644	1,752
3	1,291	1,376	1,468	1,565	1,668
2	1,210	1,290	1,376	1,468	1,564
1	1,130	1,204	1,284	1,370	1,460

01
12

Hydro One

SALARY SCHEDULE 01

35 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	MP2	MP3	MP4	MP5	MP6
9	1,880	2.006	2,138	2,280	2,430
8	1,824	1,945	2,074	2,212	2,358
7	1,768	1,885	2,009	2,143	2,285
6	1,711	1,825	1,945	2,075	2,212
5	1,655	1,765	1,881	2,006	2,139
4	1,580	1,685	1,796	1,915	2,042
3	1,504	1,605	1,710	1,824	1,944
2	1,410	1,504	1,603	1,710	1,823
1	1,316	1,404	1,496	1,596	1,701

02
12

Hydro One

SALARY SCHEDULE 02

37.5 - HOUR SALARY SCHEDULE

Dollars Per Week

STEP	FMP09	FMP10	FMP11	FMP12	FMP13	FMP14	FMP15	FMP16
9	1,662	1,773	1,889	2,015	2,149	2,290	2,443	2,604
8	1,612	1,719	1,833	1,954	2,084	2,222	2,370	2,526
7	1,562	1,666	1,776	1,894	2,020	2,153	2,296	2,448
6	1,512	1,613	1,719	1,833	1,956	2,084	2,223	2,370
5	1,462	1,560	1,663	1,773	1,891	2,016	2,150	2,292
4	1,396	1,489	1,587	1,692	1,805	1,924	2,052	2,187
3	1,329	1,418	1,511	1,612	1,719	1,832	1,954	2,083
2	1,246	1,329	1,417	1,511	1,612	1,718	1,832	1,953
1	1,163	1,241	1,323	1,410	1,504	1,603	1,710	1,823

03
12

Hydro One

SALARY SCHEDULE 03

40 – HOUR SALARY SCHEDULE

Dollars Per Week

STEP	TMS01	TMS02	TMS03	TMS04	TMS05
9	1,654	1,763	1,880	2,006	2,138
8	1,605	1,710	1,824	1,945	2,074
7	1,555	1,658	1,768	1,885	2,009
6	1,505	1,605	1,711	1,825	1,945
5	1,456	1,552	1,655	1,765	1,881
4	1,390	1,481	1,580	1,685	1,796
3	1,323	1,411	1,504	1,605	1,710
2	1,241	1,323	1,410	1,504	1,603
1	1,158	1,234	1,316	1,404	1,496

25 PAY TREATMENT OF PROFESSIONAL TRAINEES

25.1 Pay Treatment

Professional Trainees ("trainees") will be paid at Step 1 or 2 of the MP2 salary schedule. Trainees will be defined as follows:

a) all ***"new graduates" i.e.*** employees hired for Management and Professional (M&P) or Field Management and Professional (FM&P) work, when they have less than the following applicable experience requirements after Bachelor graduation:

Job Level	Applicable Experience Requirements
MP2	2 years
MP3 and over	2.5 years

or;

b) employees who are appointed to entry M&P or FM&P positions from non-M&P/FM&P salary schedules where such employees are not fully qualified or do not meet the minimum experience requirements for the position.

25.2 Individuals with advanced degrees or some applicable experience may be given an appropriate time credit when they are placed ***on Salary Schedule 01.***

25.3 ***Progression of trainees from step-to-step on Salary Schedule 01 will be dependent on satisfactory performance.***

25.4 ***A trainee's progression may be withheld due to unsatisfactory performance. In such cases the employee's performance will be reviewed at the next progression date and, if performance has been satisfactory, the employee will progress to the next level. If progression must be withheld due to unsatisfactory performance for two consecutive progression periods, there may be cause for termination. If the employee's performance is satisfactory for one year following the withholding of a progression step the employee will be awarded a two-step increase, thus restoring his/her original progression pattern.***

An absence greater than one month due to illness, pregnancy, parental leave, etc. may result in an extension of a step in the progression process. The original progression dates may be reinstated if satisfactory progress can be shown to have been made during an extension period.

25.5 Management will appoint ***trainees who have not yet been appointed to an ongoing M&P/FM&P position*** to an ongoing MP2 position upon successful completion of Step ***2,*** except during the operation of Article 64 or when there are surplus employees.

25.6 Vacation provisions that apply to M&P staff on ***Schedule 01*** will also apply to ***trainees.***

25.7 Articles contained in Part X (Relocation Assistance) will apply to ***trainees*** when they are appointed to an ongoing M&P or FM&P job.

25.8 Eligibility for other benefits and allowances which apply to regular staff will be granted to ***trainees*** when they are granted regular employee status.

25.9 Shift compensation reference point rate for ***trainees*** will be ***step 3*** of MP2.

25.10 Student employees will be paid ***at Steps 1 or 2 of the MP2 salary range***.

25.11 ***Management may utilize Steps 1 and 2 for all employees covered by the collective agreement and not just for Professional Trainees.***

26 PAYMENT OF FM&P EMPLOYEES

Employees in jobs rated under the Field Management and Professional Job Evaluation Plan will be paid in accordance with Schedule 02. The upper five grades of Schedule 02 will be equivalent to Schedule 01 (e.g. FMP16 = MP6) except prorated to reflect a base work week of 37.5 hours instead of 35 hours.

27 PAYMENT OF MANAGEMENT AND PROFESSIONAL (M&P) EMPLOYEES

Employees in jobs rated under the Plan A Job Evaluation Manual will be paid in accordance with Schedule 01.

28 PAYMENT OF TRADES MANAGEMENT SUPERVISORS (TMS)

Employees in jobs rated under the Trades Management Supervisors' Job Evaluation Manual will be paid in accordance with Schedule 03. Step 9 of TMS3 shall be equivalent to the Step 9 of MP2 (Schedule 1).

29 JOB EVALUATION PLANS

Job evaluation plans that are used to rate Society-represented jobs form part of this Collective Agreement. These plans are:

- Plan A (revised January, 1988), used to classify all M&P jobs;
- Plan A Job Evaluation Manual - delete the phrase "Once exclusion from CUPE Local 1000 has been confirmed" on page 3.
- Field Management and Professional Job Evaluation Plan (revised July, 1988), used to classify all FM&P jobs;
- Trades Management Supervisors Job Evaluation Manual (April, 1986), used to classify all TMS jobs;
- TMS Job Evaluation Manual - delete criteria "(a) qualify for exclusion from union jurisdiction" on page 2.
- Hay Plan (July, 1990), used to classify all Nursing jobs.

30 TMS AGREEMENTS

Trades Management Supervisors/Trades Supervisors (TMS) shall receive payments calculated as follows:

30.1 Union Relief Rate (currently 17% or 22%, whichever is applicable in each situation) minus the actual pay differential between the TMS ***step 9*** rate and the base rate of the highest trade group supervised, as per occupational definition, plus 3%.

$$JP\ (URR - \frac{(TMS - JP)}{JP} \times 100 + 3\%)$$

URR = Union Relief Rate (17% or 22% depending on situation)
JP = Highest Journeyperson Rate Supervised
TMS = ***Step 9*** rate of Relevant TMS Position

An example of the payment would be: if the differential between the Union journeyperson and the TMS = 15%, then the payment would be 17% (appropriate relief rate) minus 15% plus 3% = 5%.

30.2 In addition, where a TMS is supervised by a TMS, the existing salary grade differential will be maintained (6.625% or 13.25%, whichever is applicable in each situation).

30.3 a) These payments will be based on PWU CUPE Local 1000 rates effective April 1 of each year and calculated on an annual basis. In addition, the payments will be prorated in situations where a person is promoted to a TMS position during the year.

b) During the term of the Collective Agreement ***(July*** 1, 200***7*** to March 31st, 20***13)*** TMS's whose "base" salary (including any applicable relativity allowance) is less than the equivalent to the applicable URR will receive a "top up" allowance to bring their "base" salary (including any applicable relativity allowance) up to this equivalent level, as a minimum. This "top up" allowance will be treated in accordance with Section 30.4 and will not affect the employee's performance standing. Calculations for these payments will be done annually in April 2003 and April 2004**.** The "top up" allowance calculated in April may be revised ***by subsequent step increases.***

30.4 Effective ***July*** 1, 200***7*** until March 31, 20***13***, these payments will be paid on a weekly basis and treated like base salary with respect to overtime, pension and other wage-sensitive entitlements including any promotion increase. An employee's performance pay standing will not be affected by this payment.

30.4.1 When a TMS position is temporarily given a higher TMS classification or a TMS relieves for a higher-rated TMS for a minimum of five consecutive days or ten cumulative days annually, and in these situations there is a relief rate rub per Sections 30.1 or 30.2, payments will be recalculated to reflect the rub point in the reclassified/relief position and paid on a pro-rated basis for these periods. Under no circumstances will the TMS's pay (base plus any applicable relativity allowance) decrease.

For the sake of clarity by the addition of the TMS Relativity payment formula to Attachment A, Article 7, it is intended that the amount of money available for any change to this formula will be the same as that provided to the applicable Business Unit under Article 30.1 and 30.2. Flexibility is given to negotiate a redistribution of this money to TMS's within the Business Unit. There is no flexibility to modify the amount of money in the "envelope" or to change other provisions in Article 30 e.g., payments must be treated like base pay. Any Business Unit agreement would be in accordance with Article 7 and also subject

to ratification by TMS's in the affected Business Unit. The default would be the formula in Article 30.

31 SALARY PROGRESSION PLAN

31.1 ***Effective October 1, 2007 the Performance Pay Plan (1978, revised 1987) is eliminated and replaced by a new salary progression plan as described in Section 31.2. For clarity, at the end of 2007 Hydro One will not make the minimum performance payout of 1.0% of base payroll for the performance year 2007.***

31.2 ***A new salary progression plan will be implemented on October 1, 2007 that includes the following features:***

- ***a. Three salary schedules will be created, recognizing 35-hour, 37.5-hour and 40-hour work weeks. The 35-hour schedule will replace Schedule 01, the 40-hour schedule will replace schedule 08 and the 37.5-hour schedule will replace schedule 02. Current prorating pay treatment for base hours as per Article 68 remains unchanged with the exception of those covered under LOU #5.***
- ***b. The current job evaluation plans will continue to apply.***
- ***c. Progression will be on an annual basis.***
- ***d. The MP1 salary band will be eliminated and MP2 through MP6 salary bands will remain.***
- ***e. Salary ranges for all salary bands shall be equivalent to current 70% - 100%.***
- ***f. Progression from 70% to 100% shall be as follows:***
  - ***i. 70% to 80% in 5% steps***
  - ***ii. 80% - 88% in 4% steps***
  - ***iii. 88% to 100% in 3% steps***
- ***g. Schedule 04 is eliminated as it is incorporated into the initial steps of MP2. All new grads will be hired at either 70% or 75% of MP2. Article 25 will be amended and/or obsoleted as required.***
- ***h. Employees will automatically progress to the next step on their anniversary date of appointment to their position unless withheld by management (as per Article 19.4).***

31.3 ***The transition to the new salary progression plan will be as follows:***

- ***a. Effective October 1, 2007, all current employees will be mapped to the step nearest in the applicable salary band that is not less than their current pay.***
- ***b. All employees paid above the rate for the highest step in their salary***

band will be "green circled" i.e. will continue to be eligible to receive economic increases.

c. October 1 will become the "anniversary date" for employees except as follows:

i. For employees who are appointed to a different position or persons hired into Society-represented positions subsequent to the implementation date, their anniversary date will become the date of appointment to this new position.

32 PROMOTION-IN-PLACE PLANS

32.1 Definition

A "promotion-in-place plan" (PIP) means a developmental plan involving a hierarchy of related jobs, in which employees who meet defined criteria will be promoted without advertising, and where it is the normal expectation that employees will reach the end position.

32.2 Principles

32.2.1 The Society should be involved in the development and periodic review of PIPs.

32.2.2 Either the Society or Management may initiate discussions on PIP proposals.

32.3 Conditions

32.3.1 All new and revised PIPs must have the joint agreement of the parties. During the term of the Collective Agreement, a catalogue of existing PIPs will be developed and the parties will determine the schedule for their review upon request by either party.

32.3.2 Salary treatment upon promotion within PIP will be in accordance with Section 66.2.

32.3.3 Employment continuity treatment of employees with respect to PIPs will be in accordance with Clause 64.10.2.1.

32.3.4 Vacancies for PIP jobs will be advertised in accordance with Clause 65.6.1 (e).

32.3.5 All jobs in a PIP must be evaluated under the applicable job evaluation plan.

32.4 Standard Features

All PIPs must have the following features:

- based on a developmental plan to an end position;
- based on the expectation that normally employees in PIP jobs will reach the end position;
- a sunset clause;

- joint Society-Management agreement on promotion criteria consistent with the PIP;

- promotion within PIP based upon the employee meeting defined criteria (e.g., performance measures, experience, breadth of assignments). If an employee has met all of the criteria for a promotion, and the only item preventing the promotion is the individual's performance standing, then the promotion should be implemented;

- targeted to have sufficient staff in the higher level positions for unit viability;

- specification of the normal expected time period an employee should take to progress through the various stages of the PIP;

- provision for employees to have a reasonable opportunity to fulfill requirements to qualify for progression within the normal expected time frame.

33 TEMPORARY EMPLOYEES

Intent: Temporary employees are employees hired for short-term work assignments which are not ongoing and/or where there are no available qualified regular employees to perform the work. The impact on employment continuity should be an important consideration in the decision to hire temporary employees.

33.1 Society Notification

Hydro One will discuss the circumstances with the local Society representative prior to hiring a temporary employee. The Society will be informed of the job skill needs, the salary classification for the position, the expected job duties, and the duration of the assignment.

Assignment extension beyond 12 months is conditional on the employer's compliance with its prior consultation as described above. If the employer has not complied with this obligation, the employee will be terminated at 12 months. At 24 months, Hydro One will either terminate the employee, advertise the position if there is an ongoing staff requirement, or obtain the agreement of the Society for a further extension. If the position is advertised, and the temporary employee is not selected for the vacancy, the employee will be terminated.

Temporary employees will have their applications for vacancies considered in accordance with Clause 65.6.3.g.

Notwithstanding the above, Hydro One may utilize a temporary employee for up to 36 months with the approval of the appropriate Society Unit Director.

33.2 Temporary Employees with Less than 12 Months' Service

33.2.1 Compensation and Benefits Treatment

i) Vacations: payment of the prorated amount of 15 days adjusted earnings or 4%, whichever is greater.

ii) Statutory Holidays:

a) Provincially regulated employees: pay for statutory holidays provided the employee has more than three months' accumulated service.

b) Federally regulated employees: pay for statutory holidays provided the employee has more than 30 calendar days' service.

iii) Floating Holidays: three floating holidays after 20 weeks' continuous service.

iv) Sick Leave: credits for one-half day at 100% pay for each month of accumulated service.

v) Semi-Private and EHB Plan: optional at employee's cost.

vi) Remembrance Day; Personal Time Off; Parental Leave (excluding the SUB Plan); Jury Duty; Special Time Off at Christmas: same as regular employees.

vii) Kilometre Rates: same as regular employees.

viii) Personal Travel and Accident Benefits: same as regular employees.

33.2.2 Termination

When a temporary employee with less than 12 months' service is terminated for other than cause, he/she will receive at least two weeks' notice in writing.

33.3 Temporary Employees with More than 12 Months' Service

Temporary employees with more than 12 months' service are entitled to sick leave credits equal to eight days at 100% and 15 days at 75% per annum, performance appraisals and consideration for ***step progression*** and severance pay equal to two weeks' base salary per continuous year of service. All items in Section 33.2 above, except for 33.2.1 (iv), will also apply to these employees.

33.4 Temporary Employees Working Reduced Hours

Temporary employees who work reduced hours will have the items listed in Sections 33.2.1 and 33.2.2 pro rated in accordance with the provisions outlined in Article 71 (Reduced Hours of Work).

33.5 Temporary Employees and Purchased Services

33.5.1 Management shall give serious consideration and where possible (e.g., cost effective and timely) give preference to the option of using temporary employees rather than using purchased services.

33.5.2 Where management deems it appropriate, ***Hydro One may*** pay temporary employees at rates higher than Society-represented salary schedules.

PART IX - ABSENCE FROM WORK

34 PAID/UNPAID TIME OFF

Intent: It is recognized that from time to time, an employee will be faced with situations that may require him/her to be absent from his/her work. Such time will be either with or without pay, or a combination of both, and will be granted where there is an entitlement under this Agreement, a clear legal or statutory requirement, or where, in the supervisor's judgment, such time off is warranted by specific circumstances. It is further recognized that it is the employee's responsibility to balance his/her need for a leave of absence with the work requirements of his/her unit.

Where the granting of the absence is discretionary, considerations would include: factors beyond an employee's control that prevent him/her from attending work; severity or nature of circumstance; workload of the unit.

The exact amount of time off is at the discretion of Management; however, the entitlements of employees in specific circumstances include those described below.

34.1 Jury Duty/Required Attendance at Court

For the duration of the Jury Duty, or required attendance at an Inquest or court (subpoenaed witness), the employee's normal base earnings and benefits will be maintained. The employee is responsible for informing his/her supervisor as to the probable duration of the jury duty.

34.2 Funeral Leave

a) Provincially Regulated Employees

In the event of the death of a family member, including parent, parent-in-law, brother, brother-in-law, sister, sister-in-law, husband, wife, son, son-in-law, daughter, daughter-in-law, grandparents, grandparents-in-law, and grandchildren, an employee may be granted leave of absence with pay. The supervisor will take into consideration the relationship of the deceased, the distance that the employee has to travel, and the need for the employee to attend to arrangements when deciding how much time is to be granted. Usually a period of up to three days is an adequate amount of time. In the event of the death of a fellow employee, time off with pay may be granted to attend the funeral.

b) Federally Regulated Employees

i) An employee will be granted leave of absence on any of his/her normal working days during the three days immediately following the death of a member of his/her “immediate” family. Base earnings will be maintained for employees who have completed at least 3 consecutive months of continuous service.

“Immediate” family shall be as defined in the Canada Labour Code: spouse, including common-law; father and mother of employee; spouse of father and mother, including common-law; children; brothers and sisters; father-in-law; mother-in-law; spouse of father-in-law and of mother-in-law, including

common law and relative of employee who resides permanently in the employee's household or with whom the employee resides.

ii) An employee may be granted leave of absence with pay of up to 3 days in the event of the death of the following family members: brother-in-law, sister-in-law, son-in-law, daughter-in-law, grandparents, grandparents-in-law, and grandchildren.

iii) In the event of the death of a fellow employee, time off with pay may be granted to attend the funeral.

34.3 Medical and Dental Appointments

An employee may attend a medical consultation, receive dental treatment or be absent because of sickness for less than one-half day without reduction of sick leave credits and/or pay.

34.4 Family Care

An employee is entitled to take time off for family care. Normally, up to five (5) days a year may be taken for this purpose. By mutual agreement with his/her supervisor, the employee may pay for this time by using his/her banked overtime, by working back the time over a reasonable period of time, or by taking the time off without pay.

34.5 Reserve Forces

Regular employees who are members of Reserve Forces of the Canadian Armed Forces may be granted leave of absence to attend annual training (normally two weeks in duration). If such leave is granted, Hydro One will maintain the employee's health and dental benefits and will pay the employee the difference between the gross amount of pay received from the Armed Forces and his/her normal base earnings for this period.

34.6 World Class Sport Events

Employees may be granted leave to participate in world class sports events as athletes or coaches or as officials and administrators. If such leave is granted, for each day of vacation that the employee uses for participation in such an event, Hydro One will provide two days leave of absence with pay up to a maximum of two weeks.

35 SHORT-TERM ABSENCES

Payment for short-term absences (e.g., vacation, sick leave) will be based on the normal rate paid for scheduled job hours, except as stated elsewhere in this Agreement.

36 EDUCATION LEAVE

36.1 Definitions

"Educational Leave" shall mean an approved absence from work during which an employee engages in planned learning activities that provide him/her with skills that are expected to result in benefits to Hydro One.

"Reimbursable Costs" shall mean expenses incurred by the employee in the course of engaging in the planned learning activity and include registration, tuition and examination fees as well as textbooks/discs and applicable taxes. They may also include reasonable, incremental meal, accommodation and travel expenses.

"Financial assistance" shall mean an employee's base salary, health and dental benefits and reimbursable costs.

36.2 Approvals

Hydro One will grant an employee's application for an educational leave where Hydro One determines that the leave will benefit the business and the employee's absence may be accommodated without adversely impacting the viability of his/her work unit.

36.3 Terms and Conditions During Leave

36.3.1 The duration of educational leaves will normally be for a period of up to one academic year.

36.3.2 If management determines that the needs of the business would best be served by an employee taking an educational leave, then Hydro One will maintain the employee's full salary, health and dental benefits and reimburse his/her costs.

36.3.3 For other educational leaves, management will reasonably determine the level of financial assistance that the company will provide to the employee during the leave based on the expected resulting benefit to the business.

36.3.4 Where management continues to pay all or a portion of an employee's base salary during an educational leave, it shall also maintain health and dental benefit coverage for the employee for this period.

36.3.5 Where Hydro One requires an employee to take an educational leave, the company will pay the employee's full salary, health and dental benefits and reimbursable costs, including all reasonable incremental expenses (e.g., travel, accommodation, meals).

36.3.6 Where Hydro One requires an employee on leave to return to work prior to the expiry of the approved leave, the company will assume all expenses incurred as a result of this action.

36.3.7 As a condition of granting a leave application by an employee, Hydro One may require a participating employee to sign a written commitment to return to Hydro One following the expiry of the leave for a period not to exceed four times the duration of the leave times the percentage of base salary paid by Hydro One during the leave. Where Hydro One requires an employee to take an educational leave, there will be no period of stipulated continued employment.

36.4 Treatment of Employee on Return from Leave

36.4.1 Upon completion of the leave, where the employee's pre-leave position continues to exist and has not been filled or has been filled temporarily, the employee shall return to that position.

36.4.2 Upon completion of the leave, if the employee's pre-leave position no longer exists or has been filled by an ongoing appointment, the employee will be placed in a position at the same salary grade and same location as the pre-leave position.

36.4.3 In the event Article 64 is triggered during or upon completion of the leave, the employee will be redeployed in accordance with that Article.

36.4.4 Upon completion of an educational leave without pay, an employee shall have the right to contribute to the pension plan the amount that would have been contributed if he/she had remained on payroll at full base earnings during the leave and if such contribution is made the period of time on leave shall be included in calculating his/her continuous employment or established service.

37 SELF FUNDED SABBATICALS

37.1 Definition

"Self-funded sabbaticals" means an approved arrangement where an employee works regularly scheduled hours while receiving eighty percent (80%) of his/her base salary for each of four years. In the fifth year, the employee is granted a leave of absence for one year, funded by the accumulated deferred pay.

37.2 Approvals

Hydro One will approve an employee's application for a self-funded sabbatical where it determines that this arrangement will benefit the business and can be accommodated without adversely impacting the viability of his/her work unit.

37.3 Terms and Conditions of Self-funded Sabbaticals

37.3.1 The salary holdback (i.e., twenty percent for four years) will be kept in a special account and interest will be paid annually at an appropriate rate fixed by Hydro One.

37.3.2 During the leave of absence (i.e., the fifth year):

- The employee may not be declared surplus.
- The employee is responsible for his/her health and dental benefits and shall be given option of continuing coverage under the Hydro One plan through pre-payment.
- The employee's entitlement to group life, living benefit and spousal life insurance benefits shall continue pursuant to Article 2***1***.
- Hydro One shall pay the sum accumulated in the trust to the participating employee in a lump sum or in regular instalments.

37.3.3 As a condition of approving a self-funded sabbatical arrangement, Hydro One may require the participating employee to sign a written commitment to return to Hydro One following the expiry of the leave for a period not to exceed the length of the leave (i.e., maximum one year).

37.4 Treatment of Employee Upon Return from Leave

37.4.1 Upon completion of the leave the employee shall have the right to contribute to the pension plan the amount that would have been contributed if he/she had remained on payroll at full (i.e., 100%) base earnings during the leave and if such contribution is made the period of time on leave shall be included in calculating his/her continuous employment or established service, as the case may be.

37.4.2 Upon completion of the leave, where the employee's pre-leave position continues to exist and has not been filled or has been filled temporarily, the employee shall return to that position.

37.4.3 Upon completion of the leave, if the employee's pre-leave position no longer exists or has been filled by an ongoing appointment, the employee will be placed in a position at the same salary grade and same location as the pre-leave position.

37.4.4 In the event Article 64 is triggered during or upon completion of the leave, subject to the other provisions in this Article, the participating employee will be redeployed in accordance with that Article*.*

38 EMPLOYEES HIRED AS SOCIETY STAFF

At the request of the Society, a leave of absence may be granted to an employee who is offered a Society staff position. During this period the Society will assume:

- Cost of salary;
- Hydro One's cost of contributions to the Pension Plan, the Group Life Insurance Plan and the LTD Plan.
- The responsibility and cost of providing Health, Dental and Sick Leave Insurance/coverage;
- The responsibility for any other employee contributions related to employee wages and benefits provided by the Society.
- At the end of the leave of absence, Hydro One is obligated to relocate the employee within Hydro One at a salary classification as close as possible to the position held at the time the leave of absence was granted. An employee on leave will be neither advantaged nor disadvantaged in a surplus situation.

39 RELEASE OF SOCIETY REPRESENTATIVES

39.1 Intent

Hydro One will grant elected Society representatives reasonable paid time off from normal duties for purposes of involvement in joint processes and business related to Society/Management relations under this Agreement.

Hydro One recognizes and appreciates the dual responsibility employees elected to hold Society office have to their job and to Society members. Society representatives and their supervisors (those excluded from the Society) are encouraged to pursue a mutually

acceptable and cooperative approach to managing the requirement for absences as a result of this dual role. Management recognizes that the need for time off from normal duties will vary with the position that the employee holds within the Society. The higher up in the Society the more will be the demands for time off.

39.2 Specific Circumstances

39.2.1 Absence from work due to the Society representative's involvement in joint processes, tripartite processes or with respect to other business related to Society/Management relations under this Agreement, should not negatively impact on his/her performance appraisal.

39.2.2 In the expectation that the joint problem solving approach based on the principles outlined in ***the former*** Article 1.2 will be mutually beneficial to the relationship between Hydro One and the Society, Management agrees to continue its practice of maintaining base salaries for Society representatives involved in all joint processes up to but not including arbitration unless required by Management to attend.

39.2.3 Society Delegates and members of the Board of Directors will be permitted two (2) days per year at their normal base rates to attend Delegates' Council meetings. Members of the Board of Directors will be permitted up to 12 additional days per calendar year at their normal base rates, to attend Society Board meetings.

39.2.4 Hydro One will release elected Society representatives from their normal duties without pay for other Society business. The Society will give Management reasonable notice of such releases, and Management will normally release such representatives. From time to time there may be unexpected events that prevent such a release, but such situations will be the exception.

39.2.5 Hydro One shall contribute towards the salaries of the Society Executive who are employees of Hydro One. The Society Executive for this purpose shall include the President, EVP/VP. Members of the Society Executive shall remain on the payroll of Hydro One, and Hydro One shall bill the Society for the cost of salary and benefits of such persons except for an amount equal to the salary of 0.5 FTE (@ ***Step 9*** MP6). It is understood that the salary paid to the members of the Society Executive, who are employees of Hydro One, shall be the salary specified in writing by the Society.

39.3 Treatment During Release and on Return to Work

When an employee is released from his/her regular position to serve as a Society representative he/she will retain his/her pre-release position subject to the applicable provisions of the Collective Agreement. On return to work, the employee is entitled to such reasonable training or re-skilling required to return to normal duties as is feasible.

40 VACATIONS

40.1 Vacation Entitlement

The combination of Vacation Commencement (VCD) plus External Experience Value (EEV) determines service for vacation entitlement for the purpose of this Article.

40.2 Less Than One Year of Service by June 30

One and one-half (1-1/2) days vacation for each full month of service completed between June 30 of the previous year and July 1 of the current year to a maximum of three (3) weeks (15 working days).

40.3 One to Seven Years of Service

Fifteen (15) working days (three weeks) annually when an employee has completed from one (1) to seven (7) years of service by the end of the calendar year.

40.4 From Eight to Fifteen Years of Service

Twenty (20) working days (four weeks) annually when an employee has completed from eight (8) to fifteen (15) years of service by the end of the calendar year.

40.5 For Sixteen to Twenty-Four Years of Service

Twenty-five (25) working days (five weeks) annually when an employee has completed sixteen (16) years to twenty-four (24) years of service by the end of the calendar year.

40.6 For Twenty-Five or More Years of Service

Thirty (30) working days (six weeks) annually in the calendar year in which an employee completes twenty-five (25) years of service and in each succeeding year.

40.7 External Experience Credit

(Applicable to 4, 5, and 6 Weeks Vacation Entitlement)

40.7.1 Appointments to Positions Paid from Salary Schedules 01, 02, 03,

Employees who were or are hired directly into, or within one year of their ECD were or are appointed to a Society-represented position and paid from Salary Schedules 01, 02, 03, 05, 06, 07, 08, 09, 13, will receive the following vacation credits for external experience, applicable to four, five, and six weeks vacation entitlement. Credits are based upon the highest salary grade attained within one year of hiring and are translated into an External Experience Value (EEV).

The effective date of External Experience Credit entitlements will be as follows:

Salary Schedules 01, 02	April 1, 1956
Salary Schedules 03,	January 1, 1992

Salary Grade Hired Into	Vacation Credit
MP1/FMP11/TMS1-2/TS1-6/ OSS1-8/SCT3[3]	1 year
MP2/MF22/FMP12/TMS3/ TS7-8/OSS9/SCO1[4]	2 years
MP3/MF23/FMP13/TMS4/SEI1/ TS9-10/OSS1O/SCO2	3 years

[3] Relevant work experience of one year or more is required to receive this credit.

[4] Relevant work experience of two years or more is required to receive this credit.

MP4/FMP14/TMS5/SEI2/OSS11/ SCO3	4 years
MP5/FMP15/OSS12/SCO4	5 years
MP6/FMP16/HO1	6 years

40.7.2 Appointments to Positions ***Covered by Article 25***

An employee hired on or after December 31, 1981 ***to a position covered by Article 25*** will receive one year's vacation credit[3].

40.8 Vacation Credit for Prior Service

Employees will be entitled to vacation credits for all prior service with Hydro One, including casual employment, regardless of breaks in service (see Section 9.3 Transition Provisions).

40.9 Vacation Without Pay

Up to one week off without pay may be taken by employees for vacation purposes.

40.10 Use of Vacation Credits of Succeeding Year at Christmas

For purposes of taking time off at Christmas (December 15 to December 31) employees will be permitted to utilize earned vacation credits for the succeeding year.

40.11 Banked Vacation

Effective January 1, 1993, upon eligibility for 25 working days (five weeks) of annual vacation, employees may defer and accumulate any vacation entitlement beyond 15 days per year. A maximum of 30 weeks' vacation may be banked. Banked vacation may be taken at a later date, subject to the supervisor's approval, or may be taken as a cash payment upon retirement.

40.12 Vacation Bonus

Employees shall receive one day's base pay (or adjusted earnings) for each year of service beyond twenty-five (25) years, to a maximum of ten (10) days' pay.

40.13 Vacation Entitlement on Retirement/Termination

40.13.1 Retirement

A retiring employee may take part/all of earned vacation for the year in which he/she retires, plus authorized carryover from previous years and banked vacation, or receive cash payment in lieu, plus any vacation bonus.

40.14 Vacation Pay on Retirement/Termination is as follows:

a) If an employee terminates between July 1, and December 31, he/she receives the following:

i) pay for any unused vacation days earned up to June 30, and not taken during the current calendar year; plus

ii) 4% of accumulated earnings from July 1, to the date of termination, or the appropriate percentage (determined by vacation entitlement) of base earnings from July 1, to the date of termination; whichever is greater.

b) If an employee terminates between January 1, and June 30, he/she receives the following:

i) 4% accumulated earnings from July 1, to date of termination, *or* the appropriate percentage (determined by vacation entitlement) of base earnings from July 1, to the date of termination; whichever is greater; *minus*

ii) vacation taken in the current calendar year.

"Base earnings" in this Section refers to base pensionable earnings for normal scheduled hours of work.

"Accumulated earnings" in this Section refers to base earnings, plus overtime pay, shift allowances, etc.

The appropriate percentages determined by vacation entitlement are as follows:

- 4% of accumulated wages if entitlement is 10 working days or less annually;
- 6% of base earnings or adjusted earnings to date if entitlement is 15 working days annually;
- 8% of base earnings or adjusted earnings to date if entitlement is 20 working days annually;
- 10% of base earnings or adjusted earnings to date if entitlement is 25 working days annually plus any vacation bonus;
- 12% of base earnings or adjusted earnings to date if entitlement is 30 working days annually plus any vacation bonus.

If the reason for termination is the death of an employee, the payment will be made to the estate or beneficiary.

For calculation purposes, the termination date is the employee's last day of work. The employee is removed from payroll on this date.

In cases where the termination is due to causes other than death, the termination date must not be extended to permit use of outstanding vacation credits or lieu days which are paid for in cash on termination.

40.15 Deferment or Interruption of Vacations

40.15.1 Reimbursement will be made for out-of-pocket expenses incurred by an employee who, at the request of Hydro One, either defers an approved vacation or returns before the vacation has expired.

40.15.2 When an employee is called back from vacation or when an employee’s vacation is cancelled at the request of Hydro One, the employee shall receive

premium rates of pay for all normal hours worked on cancelled vacation days for which seven calendar days' notice has not been given up to a maximum of seven calendar days.

40.15.3 Deferred or interrupted vacation days will be rescheduled at a later date.

41 STATUTORY HOLIDAYS AND FLOATING HOLIDAYS

For federally regulated employees, the parties agree that Article 41 meets the requirements of Part III, Division V, General Holidays of the Canada Labour Code and that the Civic Holiday is substituted for November 11 (Remembrance Day).

41.1 The following days are recognized by Hydro One as Statutory Holidays:

New Year's Day	Christmas Day	Good Friday
Boxing Day	Victoria Day	Labour Day
Canada Day	Thanksgiving Day	Civic Holiday
Easter Monday		

If a Statutory Holiday falls on a day when an employee is off on sick leave, pay is not charged against sick leave credits for that day. A Statutory Holiday falling within an employee's vacation period is not counted as part of the vacation, but is taken as an extra day of holiday.

Payment for statutory holidays will be on the basis of straight time for the normal hours of work per day.

41.1.1 When Canada Day falls on a Saturday or Sunday, it shall be observed on the following Monday.

41.1.2 When Christmas falls on a Friday and Boxing Day on Saturday, a half holiday will be granted on the preceding Thursday. The days of observance will not be moved.

When Christmas falls on a Saturday and Boxing Day on a Sunday, a half holiday will be granted on the preceding Friday. Christmas will be observed on Saturday. Boxing day will be observed on Monday.

If Christmas Day falls on a Sunday, it shall be observed on Monday and Boxing Day on Tuesday.

When Christmas Day falls on a Tuesday, Boxing Day shall be observed on Monday.

When Christmas falls on a Wednesday and Boxing Day falls on Thursday, the Friday following Boxing Day will be granted as an additional holiday. The days of observance will not be moved.

41.1.3 When New Year's Day falls on a Saturday, an additional holiday shall be granted on either the preceding Friday, or the following Monday. The day of observance will not be moved.

When New Year's day falls on a Sunday, it shall be observed on Monday.

41.1.4 Holiday Shutdown

Hydro One may authorize a shutdown over the Christmas - New Year period. In order to encourage employees to voluntarily take this time off, employees will be allowed to use up earned vacation from the following calendar year in order to cover the shutdown period.

41.2 Floating Holidays

Employees who have completed 20 weeks of continuous service in any calendar year are entitled to three floating holidays. Such days will be taken on dates mutually agreeable to the employee and the supervisor. Floating holidays must be taken in the year they are earned (i.e. there is no carryover for floating holidays).

If an employee terminates after completing 20 weeks of continuous service in a calendar year, Hydro One will make a cash payment in lieu of any unused floating holiday credits.

If an employee terminates prior to the completion of 20 weeks of continuous service in a calendar year, entitlement is as follows:

- An employee not entitled to floating holidays in the previous calendar year is not entitled to floating holidays in the current calendar year. If an employee has been granted a floating holiday(s), Hydro One will recover one day's pay for each floating holiday taken.

- For an employee entitled to floating holidays in the previous calendar year, entitlement will be prorated based on the number of weeks of continuous service in the year of termination. Hydro One will either make a cash payment for any unused floating holiday credit or recover the value of any unearned portion taken.

42 EMPLOYMENT INSURANCE COMMISSION REBATE

The value of any Employment Insurance Commission (EI) rebate shall accrue to Hydro One.

43 PREGNANCY/PARENTAL LEAVE

The entitlements in this article are generally described in the brochure "Pregnancy and Parental Leaves for Society Represented Staff", January 2001.

Definitions

Pregnancy leave means a leave of absence of up to 17 weeks for a pregnant employee who has been employed by Hydro One for at least 13 weeks immediately preceding the expected birth date. Unless provided for in this Article, this leave is without pay.

Parental leave means a leave of absence for an employee who has been employed by Hydro One for at least 13 weeks and who is the parent of a child. This employee is entitled to a leave of absence following the birth of the child, or the coming of the child into the custody, care and control of the parent for the first time. Unless provided for in this Article, this leave is without pay.

For an employee who takes pregnancy leave, the leave of absence is for a period of up to 35 weeks. For an employee who does not take pregnancy leave, the leave of absence is for a period of up to 37 weeks.

43.1 Pregnancy Leave

a) Start Date: Pregnancy leave may begin at any time during the 17 weeks immediately preceding the expected date of delivery.

b) End Date: Pregnancy leave normally ends 17 weeks after the pregnancy leave began.

c) Notice: The employee must give Hydro One as much notice as possible and a certificate from a legally-qualified medical practitioner stating the expected birth date. In no case, however, will the employee provide less than two weeks' written notice of the day the leave is to begin.

d) Reinstatement: At the end of pregnancy leave, the employee will be eligible to return to the position the employee had prior to the leave, if it still exists, or to a comparable position, if it does not.

e) Benefits: Hydro One will continue to pay Hydro One portion of the contributions for Group Dental, Extended Health Benefits, Pension Plan, Life Insurance, and any other type of benefit plan related to the employee's employment as prescribed by the *Employment Standards Act* for provincially regulated employees, and the *Canada Labour Code* for federally regulated employees, for the duration of the pregnancy leave, unless the employee gives Hydro One written notice that the employee does not intend to pay the employee portion of the contributions, if any.

f) Service Credits: Employees on pregnancy leave shall be entitled to normal accumulation of service credits for the duration of the pregnancy leave.

g) A pregnant employee may continue to work during a normal pregnancy until such time as the duties of her position cannot be reasonably performed.

h) An employee on pregnancy leave does not qualify for sick leave.

43.2 Parental Leave

a) Start Date: The parental leave must begin no later than 52 weeks after the day the child is born or comes into the custody, care and control of the parent for the first time for provincially or federally regulated employees.

The parental leave of an employee who takes a pregnancy leave must begin when the pregnancy leave ends unless the child has not yet come into the care and control of the parent for the first time.

b) End Date: Parental leave normally ends 35 weeks after the parental leave began for an employee who also took pregnancy leave or 37 weeks for an employee who did not take pregnancy leave.

c) Notice: The employee must give Hydro One as much notice as possible but in no case will there be less than two weeks’ written notice of the date the leave is to begin.

d) Reinstatement: At the end of parental leave, the employee will be eligible to return to the position the employee had prior to the leave, if it still exists, or to a comparable position, if it does not.

e) Benefits: Hydro One will continue to pay the employer portion of the contributions for Group Dental, Extended Health Benefits, Pension Plan, Life Insurance, and any other type of benefit plan related to the employee's employment as prescribed by the Employment Standards Act for provincially regulated employees, and the Canada Labour Code for federally regulated employees, for the duration of the parental leave, unless the employee gives Hydro One written notice that the employee does not intend to pay the employee portion of the contributions, if any.

f) Service Credits: Employees on parental leave shall be entitled to normal accumulation of service credits for the duration of the parental leave.

g) An employee on parental leave does not qualify for sick leave.

43.3 Benefits Under the Supplementary Unemployment Benefit (SUB) Plan

a) In order to be paid a leave benefit in accordance with the SUB Plan, the employee:

i) must provide Hydro One with proof that she/he has applied for, and is eligible to receive unemployment insurance benefits pursuant to the *Employment Insurance Act* (EI); *and,*

ii) must be regular and employed by Hydro One for at least 13 weeks immediately preceding the date of delivery/adoption; *and*,

iii) must (a) be on pregnancy leave, *or* (b) be on parental leave.

b) According to the SUB Plan, payments will consist of the following:

i) for the first two (2) weeks, payments equivalent to ninety-three percent (93%) of the employee's base pay (pregnancy leaves only, not parental leaves); and

ii) when receiving EI benefits, payments equivalent to the difference between the EI benefits and ninety-three percent (93%) of the employee's base pay. See attached chart for duration of this “top up”. Where the employee's base salary exceeds 1.5 times the Years Maximum Insurable Earnings, the employee will receive an additional $300 as a lump sum as full compensation for any clawback that may be required by Revenue Canada or any other government agency.

iii) where an employee becomes eligible for an annual increment/salary schedule adjustment during the period of pregnancy/parental leave, payments under 41.3(b)(i), 41.3(b)(ii) and 41.3 (b)(iii) shall be adjusted accordingly.

c) An employee who qualifies under Section 43.3(a) shall sign an agreement with Hydro One providing:

i) that she/he will return to work and remain in Hydro One’s employ for a period of six (6) months from the date of return to work;

ii) that she/he will return to work on the date of the expiry of pregnancy/parental leave, unless this date is modified with Hydro One's consent or unless the employee is then entitled to a leave extension provided for in this Article;

iii) that should the employee fail to return to work as per the provisions of Subsections 43.3(c)(i) and 43.3(c)(ii), the employee recognizes that she/he is indebted to Hydro One for the amount received under the SUB plan.

PREGNANCY/PARENTAL LEAVES - TIME LINES

P R O V I N C I A L AND FEDERAL

(Only maximum entitlements available are shown)

Birth Mothers:

Pregnancy Leave

2 wks 93%	15 wks EI SUB=93%

Plus Parental Leave as outlined below.

All Parents who are Entitled to Parental Leave and EI Benefits in accordance with Employment Standards Act or Canada Labour Code

Parental Leave if EI Eligible

2 week waiting period (if required)*	***3*** weeks	Maximum 32 weeks
Unpaid	EI + SUB = 93%	EI

- Duration of Parental Leave is maximum 35 weeks if the employee has preceded their Parental Leave with Pregnancy Leave. Otherwise, maximum is 37 weeks.

***** Note: A waiting period is not always required. Should parents choose to share parental benefits, the parent filing the second claim will not be required to serve a two-week waiting period. There will be one waiting period per birth or adoption.

All Parents who are entitled to Parental Leave in accordance with Employment Standards Act or Canada Labour Code but who are ineligible for EI Benefits

Parental Leave if ineligible for EI

Maximum 35 weeks
Unpaid

44 SICK LEAVE PLAN

It is recognized that the provisions of the Sick Leave Plan are not an automatic right of an employee and that administration of this Plan and all decisions regarding the appropriateness or degree of its application shall be vested solely in the Company.

44.1 The Sick Leave Plan provides for maintenance of an employee's income when he/she is absent from work due to illness or non-occupational injury.

44.2 Employees are granted 23 days of sick leave a year - eight (8) days at full pay and 15 days at three-quarter pay. These grants accumulate continuously each year if not used, up to a maximum of 200 days at three-quarter pay and no limit to the number of days at full pay.

44.3 (This Section applies only to employees hired before January 1, 2002. It does not apply to employees hired on or after this date). In the year in which an employee completes six years of service, all sick leave used in the first year of service will be restored. In the 7th year of service, all sick leave used in the 2nd year of service will be restored. This will continue until the employee has completed 15 years of service. In the 16th year of service, all sick leave used in the 11th through to the 15th years of service will be restored. In every year after 16 years of service, sick leave credits will be restored at the end of the year following the year in which they were used. There will be no payout of unused sick leave credits when an employee leaves the service of Hydro One.

44.4 An employee will be reimbursed for any doctor’s note required by Hydro One.

44.5 The following provisions apply only to employees hired on or after January 1, 2002. They do not apply to employees hired before this date.

44.5.1 When employees have exhausted their sick leave credits and are on sick leave, they will be paid at 75% of their base rate for a period of up to 6 months or until approved for Long Term Disability (LTD), whichever comes first.

44.5.2 Employees who are on continuous sick leave for 6 months and who qualify must go on LTD.

44.5.3 In the event of denial of LTD benefits, employees will have their wages maintained at 75% of their base rate until completion of their LTD appeal, for a period not to exceed 2 months.

45 LONG TERM DISABILITY

The Long Term Disability (LTD) Plan provides financial security and rehabilitative employment features to regular employees during their absence from work due to extended sickness or injury. The benefits and terms and conditions of benefit entitlement of the Long Term Disability Plan are as described in: the Collective Agreement and the brochure entitled “Sick Leave and Long term Disability Plans, updated May 31, 2000”. These documents, by reference, form part of the Collective Agreement. The benefits and terms and conditions of benefit entitlement as described in the above documents can be changed by mutual consent only.

45.1 Qualifying Period

The qualifying period is defined as the period six calendar months from the starting date of the employee's continuous absence due to disability; or a total of six months in accumulative authorized medical absences in the year prior to the date sick leave expires due to the same progressively deteriorating disability; or the expiration of sick leave whichever is longer.

45.2 Disability Period

The period in which an employee cannot continuously perform the essential duties of any position available in accordance with the priority placement criteria of the Rehabilitation and Re-employment Procedure.

45.3 Benefits

During the disability period, the plan will provide an income equal to the lesser of:

Sixty-five percent (65%) of base earnings at the end of the qualifying period for LTD benefits, or

Seventy-five percent (75%) of base earnings at the end of the qualifying period for LTD benefits less any pension entitlement and/or any supplement from the WSIB (excluding the Non-Economic Loss award) and or the Canada Pension Plan, excluding benefits for dependents.

A person who runs out of sick leave credits during the qualifying period will be granted a leave of absence without pay until such time as the LTD qualifying period elapses. The employee will continue to receive service credit during this period and have coverage maintained in, but will not be required to contribute to, the Hydro One Pension Plan, Health and Dental benefits, and the Group Life Insurance Plan.

45.4 Other Conditions

45.4.1 Hydro One and/or the insurance carrier reserve the right to periodically obtain necessary proof of continued disability. If at any time an individual who has been declared disabled and placed on LTD is capable of returning to any further service with Hydro One, Hydro One will request and the Society will normally grant a waiver of posting requirements except in the case of redeployment under Employment Continuity.

45.4.2 Employees who are in receipt of LTD benefits will have their LTD benefit levels adjusted by the indexation increase which is applied to Hydro One’s Pension Plan.

45.4.3 Where a position is identified that both Hydro One and the employee on LTD agree he/she can become qualified for through educational retraining, Hydro One will pay tuition fees associated with the retraining, up to a maximum of three years.

45.4.4 Employees on LTD must apply for CPP disability benefits after an appropriate period (6 months) unless there are compelling (e.g., medical) reasons that prevent the employee from doing so.

46 WORKERS' COMPENSATION LEAVE

An employee awarded a Workers' Compensation grant shall be granted a compensable disability leave with compensation made up of a tax-free Workplace Safety and Insurance Board award, and a taxable top-up grant for the duration of Workers' Compensation Disability benefits. The top-up grant will ensure an employee's net pay is maintained.

If the employee is awarded a Future Economic Loss (FEL) award and is unable to perform the essential duties of any available job, the leave and top-up grant will be extended for the first 24 months of the FEL award. If an employee is unable to return to work during the first two years of a FEL award, an application for LTD should be submitted. The qualifying period is waived in these cases, and LTD benefits will be payable at the expiry of the first FEL for a qualifying employee.

Pending a decision of the Workplace Safety and Insurance Board regarding the legitimacy of a claim the employee will receive sick leave. Employees who are receiving Workers' Compensation benefits for claims or injuries suffered while in the employ of an Employer other than Hydro One are required to notify Hydro One of being in receipt of those benefits in order to qualify for the top up grant. These employees will not be eligible for sick leave while receiving Workers' Compensation benefits for the top-up grant.

The top-up grant for compensable disability leave will be withheld if the employee refuses a medically suitable position that she/he is capable of performing, pursuant to the provisions of Article 47 ("Rehabilitation and Re-Employment") of the Collective Agreement. The grant may also be withheld where an employee is subject to appropriate discipline or discharge for cause pursuant to Article 17 ("Discipline and Discharge").

Authority for withholding the supplementary grant is vested in Directors.

47 REHABILITATION AND RE-EMPLOYMENT

47.1 Application

This Article applies to Hydro One employees ("eligible employees") who:

- Qualify for Long Term Disability (LTD) Plan benefits; and/or
- Have been approved for a Workplace Safety and Insurance Board (WSIB) award; and/or
- Are regular employees who have medical disabilities that prevent them from performing the essential duties of their jobs. These employees are referred to as medically-restricted-at-work (MRAW).

47.2 Definitions

"Medical rehabilitation" shall mean medical support services to facilitate speedy and maximum recuperation prior to or during rehabilitative employment, including physical, psychological or emotional assessments, therapy, treatment and conditioning.

"Vocational Rehabilitation" shall mean support services to facilitate re-employment, including assessment of transferable occupational skills/aptitudes, identification of specific job accommodation and associated training requirements and formulation of rehabilitative employment plans and counselling.

"Rehabilitative employment" shall mean temporary work assigned to a recovering or recovered employee with an ultimate goal of continuing full employment.

"Affected employees" shall mean employees who have undertaken vocational rehabilitation assessments provided by Hydro One and the results indicate a need for active services to facilitate the goal of returning to continuing full employment. This classification includes employees in receipt of LTD benefits who are assessed medically able to return to work.

"Rehabilitative employees" shall mean employees who are eligible for rehabilitation and are capable of rehabilitative employment.

47.3 General

Rehabilitation employment may not be used as a means to manage, discipline or place employees with poor/unsatisfactory performance unrelated to medical reasons.

47.4 Vocational Rehabilitation

47.4.1 Hydro One shall identify eligible employees as soon as possible and ensure their timely assessment regarding their need for vocational rehabilitation services.

47.4.2 Hydro One shall provide timely vocational rehabilitation services for affected employees. The goal is to facilitate the employee's re-employment in a continuing capacity that will make maximum use of his or her capabilities.

47.4.3 Hydro One shall develop a rehabilitation plan ("the plan") for each affected employee. The plan is subject to mutual agreement of the employee, his/her personal physician, the Society (if its participation has been requested by the employee) and Hydro One. The plan will establish a return to work goal that is reasonable and realistic in the circumstances (e.g., recognition that a six-month rehabilitation may be insufficient for LTD benefit recipients in some cases). It will also describe the training, conditioning and therapy programs required to enhance the employee's capabilities within a defined timeframe. It will include an assessment of an affected employee's job accommodation needs (e.g., reduced hours, modified light duties, altered work station). The plan shall have a pre-determined duration and will be subject to periodic monitoring to assess the need for corrective actions to maximize the probability of successful continuing full time employment. Any party to the plan may request its review and/or revision.

47.4.4 Hydro One shall pay for vocational rehabilitation services and reimburse employees for reasonable expenses related to vocational rehabilitation.

47.4.5 Affected employees shall cooperate in the development of their vocational rehabilitation plans. MRAW employees shall provide confirmation of the nature of their medical restrictions by his/her personal physician to Hydro One or arrange with Hydro One to have these restrictions assessed.

47.5 Rehabilitative Employment

47.5.1 This section applies to rehabilitative employees.

47.5.2 An employee is entitled to placement in a medically suitable and reasonable position that accommodates his/her needs as identified in his/her rehabilitation plan (e.g., reduced hours, modified duties). Where an employee is MRAW, his/her fitness to perform essential duties of a job and work restrictions shall be identified.

47.5.2 Although the goal of rehabilitation is continuing employment in a full-time position, some employees have medical disabilities that may not be supportive of working full-time. Where the rehabilitation plan identifies reduced hours (minimum 14 hours maximum 28 hours per week) as a permanent medical restriction (supported by medical evidence) the employee will be re-employed and accommodated in an available and suitable ongoing position while retaining his/her LTD status.

47.5.4 The priority placement shall be the employee's return to his/her pre-disability position. Hydro One shall make all efforts to accommodate the employee in his/her pre-disability position.

47.5.4 In the event that efforts to satisfy an employee's assessed accommodation needs in his/her pre-disability position are not feasible or upon mutual agreement of the employee, Hydro One and the Society (where the employee has requested its participation), employees may be placed in a suitable alternate position. In these cases, Hydro One shall identify a target position or family of positions compatible with the employee's medical restrictions.

47.5.4 Where suitable alternate placement is required or agreed upon, an employee shall apply for vacancies identified by Hydro One as having essential job duties compatible with his/her medical restrictions.

47.5.4 Employees will be selected for suitable alternate positions in accordance with Article 65. Where more than one position is available, the employee will be offered the position nearest the salary level of the pre-disability position. The job offer may be no more than two salary levels below the pre-disability position.

47.5.8 Priority will be given to placement of employees in positions within Hydro One. External job opportunities, however, will be explored if appropriate internal positions do not exist. The employee must agree to any external placement.

47.6 Terms and Conditions of Rehabilitative Employment

47.6.1 Base salary in rehabilitative employment positions shall reflect normal scheduled hours worked at the current base hourly rate of the position (i.e., prorating shall apply in reduced hours situations).

47.6.2 When a rehabilitative employee is placed in a position whose salary grade is lower than his/her pre-disability position, Hydro One will maintain the base salary and benefits of the pre-disability position until the employee's current pay entitlement as determined by performance standing in the new position exceeds that of the pre-disability position.

47.6.3 Rehabilitative employees shall continue to receive approved LTD/WSIB/Sick Leave benefits in accordance with the applicable statutory or collective agreement provisions. However, these entitlements shall be adjusted so that

the total of the rehabilitative base salary and these benefits shall not exceed the current full-time base rate of the position occupied by the employee prior to disablement.

47.6.4 Where an employee returning from LTD receives a base salary less than the LTD benefit, Hydro One shall pay a supplementary amount equal to the shortfall to the employee.

47.6.5 Employees in receipt of LTD benefits shall receive the greater of the base salary for hours worked or LTD benefit entitlement.

47.6.6 Employees in receipt of LTD benefits shall continue to receive full (i.e., full time) service credit during rehabilitative employment and have full coverage (i.e., no prorating) in the Pension and Group Life Insurance Plans.

47.6.7 Rehabilitative employees shall be eligible for performance pay increases. They shall receive performance appraisals where medical restrictions do not preclude their application. Performance appraisals and pay adjustments shall take into account medical restrictions with respect to establishing goals and measuring achievements.

47.6.8 Following the successful completion of rehabilitative employment and placement in an ongoing position, the employee shall be ineligible for LTD/WSIB/Sick Leave benefits and will receive the normal base salary for their position.

47.7 Termination of Employment

In the event an eligible employee refuses reasonable rehabilitative employment or a reasonable job offer for re-employment, the employee shall be terminated without entitlement to LTD benefits. Where an employee grieves termination for medical incapacity an arbitrator shall have jurisdiction to consider relevant post-termination evidence of rehabilitation.

PART X - HEALTH BENEFITS

Hydro One, through its claims services provider, shall provide extended health benefits and dental coverage as outlined in the brochure entitled "Health and Dental Plan for Society (effective January 1, 2002)" (dated March 19, 2003***)*** as amended pursuant to Section 48.4 and in accordance with the insurance carrier contract in effect at the commencement of the collective agreement. This does not in any way restrict the Employer's right to change the insurance carrier provided employee benefits are unaffected.

48 EXTENDED HEALTH BENEFITS (EHB)

48.1 Hydro One agrees to offer employees the option of using the Preferred Vision Services (PVS) Plan, subject to its availability.

48.2 Subject to the written consent of the Society, on a case by case and without prejudice basis, Hydro One and individual employees may enter into written agreements ("individual agreements") whereby, for a specified duration, the employees may waive their rights under the EHB Plan and opt for a different/alternative treatment. This enabling provision does not constitute an employee entitlement to different/alternative treatments but rather allows special requests to be accommodated by mutual agreement without increasing the costs of, or entitlements under, the EHB Plan. Neither the provisions of these individual agreements nor the decision by any party not to enter into such an arrangement are grievable***.***

48.3 A joint team will examine and make recommendations on the administration of employee benefits, including cost management of the plans, and for presenting data on employee benefits items as assigned by the parties***.*** This joint team will provide a forum for dialogue on employee benefits during the term of the renewed Collective Agreement. The team shall consist of three representatives and one staff resource from each party plus additional resources as may be needed from time to time.

48.4 The health and dental plan and associated brochure shall be amended to include provision for the following changes;

- ❑ Increase vision care to $425 every two years effective April 1, 2005, to $450 every two years effective April 1, 2007***, to $475 every two years effective January 1, 2009 and to $500 every two years effective January 1, 2011.***

- ❑ Coverage of food supplement products like Nutramigen for children and like Ensure and Boost for adults.

- ❑ Coverage of incontinence products for cancer patients.

- ❑ ***Language will be added to the Benefit Book to reflect the following:***

  Pensioners and surviving spouses of pensioners who enter into marriage or common-law marriage are precluded from adding their new spouse and/or new children as dependents on the Hydro One Health and Dental Plan.

  Surviving spouses of employees who enter into marriage or common-law marriage are precluded from adding their new spouse and/or new children as dependents on the Hydro One Health and Dental Plan.

49 DENTAL PLAN

49.1 Effective January 1st of each year of the collective agreement, the dentist fees will be paid up to the amounts shown in the current Ontario Dental Association (ODA) Fee Guide.

50 SEMI-PRIVATE HOSPITAL ACCOMMODATION PLAN

Coverage under the Semi-Private Hospital Accommodation Plan is unchanged.

51 PERSONAL ACCIDENTS

51.1 Hydro One shall pay accident benefits to employees for accidental bodily injury causing temporary total disability, permanent total disability or death in accordance with the current Table of Personal Accident Benefits.

51.2 Hydro One shall reimburse employees for medical expenses incurred as a result of an accident in excess of coverage provided by the Hydro One health benefits plans, OHIP or WSIB to the extent permitted by law

PART XI- RELOCATION ASSISTANCE

The following provisions apply to regular employees and are outlined in the brochure entitled "Relocation Assistance Benefits for Performance Paid Staff" (1995). Employees ***in positions covered by Article 25*** will receive the treatment contained herein when appointed to regular positions, and required to relocate as a result of Hydro One's business.

52 HOUSING ASSISTANCE PLAN

52.1 Intent

52.1.1 Hydro One's purchase of an employee's principal place of residence is designed to ensure that an employee who moves will not be forced to endure unreasonable periods of family separation or inconvenience due to inability to sell the employee's home at a fair market price.

52.1.2 It will be the prerogative of Hydro One to reject an employee's application for Housing Assistance if in Management's opinion the property is not an acceptable risk.

52.1.3 The employee must abide by all of the requirements of the Housing Assistance Plan. Failure to do so will result in the employee becoming ineligible for housing assistance from Hydro One.

52.2 Purchase Guarantee

52.2.1 Hydro One will provide a purchase guarantee based on an appraisal of the property's current worth by a group of up to three appraisers, to be selected by the Real Estate Service in conjunction with the employee.

52.2.2 Hydro One will not request appraisals until the employee is ready to list his or her house in the marketplace providing this is within one year of the employee's transfer to the new work location and the employee is prepared to abide by Subsection 52.2.4 and Subsection 52.3.1.

52.2.3 The employee must acknowledge acceptance or rejection of Hydro One's Purchase Guarantee within five days of its receipt. If the employee rejects the Purchase Guarantee, Hydro One has no further responsibility with regard to Housing Assistance or the Purchase Guarantee.

52.2.4 If the employee wishes to participate in the Housing Assistance Plan, the employee must not list the property for sale until the Purchase Guarantee has been accepted.

52.2.5 Home Appraisal Documentation

Hydro One will provide the Society with an initial six month report of home appraisal documentation prior to January 1, 1995. Representatives from Hydro One and the Society will meet to discuss the particular form and content of subsequent reports. Upon agreement on the form and content a letter of understanding will be developed which will require the report to be given to the Society on a semi-annual basis for the term of this collective agreement. Any

anomalies in the report may be discussed by the Society and the Hydro One confidentially with full disclosure of information (including appraisals).

52.3 Listing of Property

52.3.1 If an employee chooses to participate in the Housing Assistance Plan, by accepting the Purchase Guarantee, the employee will immediately list the property for 90 days on MLS (where such service is available) at a price not exceeding 107% of the guaranteed price.

52.3.2 The employee will retain the right to sell to a third party until such time as the property is turned over to Hydro One for resale.

52.3.3 In order to assist the employee to dispose of the property expeditiously and at a fair market value, the employee should notify the Employee Relocation Administrator of all offers to purchase during the listing period. Hydro One may ask the employee to accept an offer which is lower than the Purchase Guarantee, whereupon the employee will be compensated for the difference between Hydro One's Purchase Guarantee and the amount of the offer. The employee's acceptance of any offer less than Hydro One's Purchase Guarantee is not mandatory and the employee will retain control of the sale of the residence throughout the listing period. All offers to purchase will be held in confidence by the Employee Relocation Administrator.

52.4 Sale of Property by Hydro One

52.4.1 The employee must be prepared to sign power of attorney authorizing Hydro One to sell property on the employee's behalf on the first day following the 90 day listing period. If the employee will be unable to vacate the premises at that time, the Employee Relocation Administrator must be notified.

52.4.2 Hydro One will pay to the employee the difference between the value of the property to Hydro One (Purchase Guarantee) and all existing encumbrances, including the advance of equity.

52.4.3 When an employee applies for assistance under this procedure, he or she must declare under oath, if required by Hydro One, all encumbrances of any nature or kind whatsoever, including executions, chattel mortgages, and notices of conditional sales contracts which the employee is obliged to pay.

52.4.4 In consideration of the payment to the employee of the amount established in Subsection 52.4.2, the employee will complete a deed of sale of the property, conveying the same by good and marketable title, but subject to all existing encumbrances, to Hydro One or its nominee.

52.5 Advance of Equity

In order to provide the employee with funds for a deposit or down payment on a residence at the new location, an advance of up to 100% of the employee's equity (Purchase Guarantee minus encumbrances) in the residence at the former location may be loaned to the employee by Hydro One. Advance of equity is interest free for employees who avail themselves of the Purchase Guarantee for 90 days for until the house is turned over to Hydro One or until the closing date of the sale of the house to a

third party, whichever comes first. For employees who reject the Purchase Guarantee, the advance of equity is interest free for 90 days. Repayment is as set out in the Relocation Assistance Benefits brochure.

53 MOVING EXPENSES

53.1 Intent

53.1.1 Since Hydro One has province-wide operations, employees may be required to move about the Province as part of their jobs. For clarification, relocation assistance entitlements are not limited to moves within the Province.

53.1.2 Hydro One recognizes that there may be a number of relatively costly expenditures associated with moving and will endeavour to ensure that such expenses will be adequately covered.

53.1.3 Hydro One will not assume responsibility to compensate for any upgrading in an employee's standard of living which may take place as a result of moving.

53.1.4 The Housing Assistance Plan will apply to the employee's principal place of residence and will not cover summer cottages, commercial real estate holdings or other secondary properties.

53.1.5 Employees who receive any moving expenses are subject to Canada Customs and Revenue Agency rules and regulation.

53.1.6 Relocation expenses will not be paid for work headquarter transfers within the boundary of the current City of Toronto, save for exceptional circumstances of hardship as may be reasonably determined by Hydro One.

53.1.7 Notwithstanding anything in this Article, in order to qualify for moving expenses after the employee’s headquarters moves, the headquarters move must result in a greater distance from the employee’s home.

53.2 Minimum Moving Distance

53.2.1 Normally, an employee must move a minimum of 40 road kilometres by the shortest normal route closer to the new work location to qualify for relocation assistance.

53.2.2 The provisions set out in Subsection 53.2.1 will apply unless Mid-Term agreements pursuant to Article 7 are in effect.

53.3 Expenses for Reimbursement

53.3.1 Household Effects

Hydro One will arrange for and shall pay the cost of packing, moving by freight or truck and insurance charges on household effects.

53.3.2 Home Buying and Legal Fees

Employees shall be reimbursed for legal disbursements and real estate brokerage fees associated with the purchase and/or sale of property valued up to five times the employee's annual base salary in the new location at the time of job transfer as follows:

a) Legal Fees

- The employee will advise Hydro One of his/her preferred lawyer. Hydro One will request the lawyer for an estimate on what the fees will be to complete the sale and/or purchase transaction. If Hydro One finds the solicitor's estimate to be unreasonable, Hydro One will ask the employee to recommend another solicitor to close the transaction.
- Legal fees and disbursements actually incurred in selling an old and buying a new residence will be paid by Hydro One.
- Legal fees shall be defined to include fees for arranging or discharging a first mortgage when required and will include land transfer tax.
- Disbursements shall be defined herein as those items paid by a lawyer on behalf of the employee for services in connection with the purchase or sale of the employee's residence including land transfer tax and land surveys when required, Ontario New Home Warranty Program if required for a new house, GST, and penalty costs to a maximum of three months' interest payments involved in discharging a first mortgage on the residence in the former location when required.

b) Referral Fees/Home Inspection

- When the employee is prepared to submit an offer to purchase on a property, Hydro One will make arrangement for one home inspection at Hydro One's expense. All offers to purchase should have a clause in the offer conditional upon the positive results of an inspection report. Any additional inspections for any reason will be at the employee's expense.
- Real estate brokerage fees charged by a real estate agency to the maximum standard recognized scale for services rendered in selling the employee's house shall be paid by Hydro One.

Note: The changes identified above are not meant to take away the existing right of the employee to select the real estate agent or lawyer.

53.3.3 Transfer Expenses

A transferred employee is expected to make arrangements to move expeditiously but this should not exceed a period of one year from date of transfer, except where there is a specific agreement between the employee and local management for an extension. The employee must provide in writing his/her intention to move to the supervisor, prior to receiving payment for any applicable living expenses. Reimbursement for actual costs incurred in the move will be allowed as follows:

- All employees who are eligible for moving expenses shall be afforded 12 weeks from the date the employee reports to work in the new location (i.e., date of transfer) to decide whether or not they wish to move. Payment of the following expenses is predicated on the employee maintaining his/her previous principal residence:

  a) During this 12 week period, the employee shall have the option of either commuting to and from his/her new work location and receiving incremental travel expenses (i.e., additional travel costs beyond the employee's normal travel costs to the old work location), the total cost of which not to exceed living expense equivalent, or being paid living expenses in the new location. If the employee expressly indicates that he/she does not intend to relocate his/her residence, all expenses will cease at that time.

  b) All expenses will stop at the end of the 12 week decision period unless the employee has provided in writing his/her intention to move within one year of date of transfer. Providing that the employee demonstrates to Management's satisfaction that arrangements to move with employee's family to the new location are being made as quickly as possible, the employee's living expenses in the new location or incremental travel expenses will be paid until such time as the employee moves or for a period not to exceed a further 6 months unless the employee can demonstrate serious hardship, in which case the period of expense coverage is 9 months (in addition to the initial 12 week decision period). The time limits mentioned above may be extended by a specific mutual agreement between the employee and line management for a total period not to exceed two years from the date of transfer.

  c) If an employee, after providing written notification of his/her intention to move fails to do so, all expenses paid on his/her behalf or travel expenses paid to him/her for any period beyond the initial 12 weeks from the date of transfer or the date of his/her written intent to move, whichever comes first, shall be repayable to Hydro One. Repayment shall be made within one month of a written communication stating his/her intention not to move or within one year of date of transfer whichever comes first.

  d) Exceptions to the repayment requirement should the employee fail to move may be made by reasonable exercise of the Business Leader's discretion (e.g., for reasons of significant unforeseen life hardships, Hydro One transfers, Hydro One international assignments, etc.).

- Transportation to the new location and living expenses while in transit to the new location will be paid for the employee and family (spouse and dependent children) and any other dependents of the employee's household. A reasonable number of visits by the employee and family, to the new location to assist in the selection of a new principal residence will be paid at the discretion of local Management.

- Living expenses of the employee and family during the period while household effects are in transit will be paid.

- Reasonable upkeep costs including mortgage interest on the old residence will be paid for a period of up to three months after the employee has moved to the new residence but still retains title to the old residence due to an inability to sell. If closure of the sale is imminent, the period may be extended by up to six weeks.
- Time off with pay to a maximum of one day's base earnings if the day of the move falls on a normally scheduled working day.
- Employees may elect, subject to the negotiations of their availability through Business Unit Mid-Term Agreements (Article 7), to receive lump sum payments in lieu of the following:

  * temporary living expenses;

  * reimbursement for costs associated with return to residence headquarters;

  * benefits and expenses associated with house hunting trips;

  * temporary storage, etc.

53.3.4 Spousal Assistance

An employee will be reimbursed for his or her spouse's job search expenses, supported by receipts, up to a maximum of $750.00.

53.3.5 Rental Assistance

An employee who transfers to a higher cost rental area and who rents comparable rental accommodation will be provided with rental assistance by Hydro One as follows. The extent of this assistance will be the lesser of:

a) the monthly rent in the old location multiplied by Hydro One's rental differential;

   or

b) the amount of the monthly increase in rent.

An employee who rents in the former location and purchases in the new location will be eligible for the equivalent of rental assistance as will the employee who conversely owns a home in the former location and rents in the new location.

Rental assistance will be provided for a five year period, based on 100% assistance in the first year and decreasing by 10% annually over the next four years.

This assistance will cease if the employee transfers to a new work location, terminates his/her employment with Hydro One, ceases to rent, retires or dies.

53.3.6 Rental Management Program

Upon request, Hydro One will arrange for a rental management firm to rent an employee's house when he/she is expected to return within five years and will pay the costs associated with this arrangement if it is in Hydro One's financial interests to do so.

53.3.7 Miscellaneous Expenses

Employees will be reimbursed for miscellaneous expenses associated with the move up to the limit of one month's salary based on normal scheduled hours of work. These expenditures are intended to cover items such as:

- cost of rental search assistance;
- costs incurred as a result of the move such as, cleaning, painting and decorating costs; adaptation, removal, installation or replacement of house furnishings and appliances;
- costs for connecting water, natural gas, and electricity to a new house if charged to the employee as purchaser.

Employees will not be reimbursed for capital expenditures which tend to increase the market value of a house, major house repairs or renovations.

53.4 Second Related Move

If a suitable residence is not available at time of transfer, an employee may rent temporary premises for up to one year. Under these circumstances, Hydro One will reimburse the employee for costs incurred in accordance with all Sections of this Agreement for either one of the two moves. For the other move, only costs of transportation, moving household effects, and legal fees incurred will be paid.

53.5 On Retirement

53.5.1 If Hydro One requires an employee who occupies a house or trailer on Hydro One property or a site under Hydro One control to move on retirement, the employee will be reimbursed as outlined in Section 53.3 for the cost of a move to any location in Ontario in which he or she desires to settle.

53.5.2 If an employee is requested to undertake a change in work headquarters involving a change in principal residence, and is age 55 or older on the date of transfer, consideration shall be given to the reimbursement of some or all of the moving expenses of that individual upon eventual retirement from Hydro One. The extent and terms of the assistance to be provided upon retirement will be determined at the time of transfer.

53.5.3 Only moving expenses within the Province of Ontario or to the nearest exit point from the Province will be eligible for consideration.

54 FINANCIAL ASSISTANCE PLAN

Hydro One shall contribute towards the interest costs on the increase in capital expenditure for an employee who is transferred to a higher cost housing area. Eligibility for this assistance will be determined by using:

a) a house-for-house comparison conducted by Hydro One.

The amount of assistance will depend upon the:

- sale price of the residence in the former location;
- relative value of comparable housing in the new location;
- actual increase in housing costs (purchase price less sale price);
- current interest costs

The locality differential will be based on the differential in effect as of the date of closing of the purchase of the residence in the new location. The interest rate used to calculate the level of assistance will be based on Hydro One's employee housing loan rate for a five year term as published by the Treasury Division (or the actual mortgage rate, whichever is less) as of the date of closing of the purchase of the residence in the new location.

The financial assistance will decrease annually in twenty (20) percent increments over a five year period.

An employee receiving financial assistance must advise Hydro One if he/she sells or rents his/her house in the new location within five years of purchase. Assistance provided to the employee will be reviewed and revised accordingly.

Financial Assistance ceases upon termination or retirement. However, should an employee die while receiving financial assistance associated with relocation, such assistance may continue as per the original entitlement based on a case-by-case review by the Business Unit providing the following condition is met:

- the designated beneficiary provides affidavits on an annual basis that the principal residence for which the assistance is paid continues to be his/her principal residence and that no new revenues for renting any portion of the residence are being received.

55 HOUSE EVALUATION AND GUARANTEE PLAN

Upon subsequent transfer within Hydro One, an employee will be guaranteed his/her purchase price up to a maximum of four times his/her base salary at the time of the initial transfer (plus $1500 for capital improvements on new homes, $15,000 for resale homes or minus $3,000 for damages to the property). This guarantee will be for a period of ten years from the date of purchase. Improvements must be verified by receipts and do not include normal painting, decorating and maintenance costs. An employee may not sell his/her house for less than the guaranteed amount without the consent of Hydro One.

56 COMPENSATION WHEN ASSIGNED TO TEMPORARY WORK HEADQUARTERS

56.1 Intent

a) When there is an assignment to a Temporary Work Headquarters, the employee and his/her supervisor must have a mutual understanding of the terms of the assignment prior to its commencement using the following provisions.

b) Employees assigned to a Temporary Work Headquarters should not be separated from their families for exceptionally long periods of time due to work requirements and should be compensated for all reasonable out-of-pocket expenses and travel costs.

c) When an employee is assigned to a Temporary Work Headquarters, the employee will normally remain at the Temporary Work Headquarters. If there is mutual agreement between the supervisor and employee to commute daily, then the employee may do so.

d) Employees will be reimbursed for all reasonable out-of-pocket expenses associated with being assigned to the Temporary Work Headquarters.

e) Employees will be reimbursed for any additional travel costs beyond their normal travel costs to their Regular Work Headquarters.

f) Travel time on the first trip to, and on the last trip from, the Temporary Work Headquarters shall be either during normal scheduled hours or compensated in accordance with Article 59 (Travel Time) if outside normal scheduled hours.

g) Selections for Temporary Work Headquarters assignments should not be made on the basis of travel cost considerations.

56.2 Definitions

"Regular Work Headquarters": The location to which the employee normally reports in order to receive work assignments or to perform regular duties.

"Temporary Work Headquarters": The location to which an employee is directed in order to carry out assigned duties away from Regular Work Headquarters.

"Periodic Return": The return to the employee's principal residence once every two weeks.

56.3 Compensation When Remaining at Temporary Work Headquarters (TWHQ)

a) When the employee resides at the TWHQ and does not commute, the employee shall be reimbursed for all reasonable out-of-pocket expenses incurred while at the TWHQ.

b) An employee who resides at the TWHQ will be allowed a periodic return once every two weeks.

The employee shall be reimbursed for travel costs associated with the periodic return for the distance between his/her principal residence and his/her TWHQ, less normal travelling costs. Travel time associated with periodic return, outside normal scheduled hours and in excess of one hour each way, shall also be compensated. Compensation will be either in equivalent time off, or in pay, at straight time rates. Time spent in obtaining a meal will not be compensated.

c) On intermediate weekends, if the cost of remaining at the TWHQ would be less than the cost of a return trip, the employee may claim actual travel costs up to the cost of remaining at the TWHQ. If the cost of remaining at the TWHQ is greater than the cost of a return trip, the employee may be reimbursed for all travel costs incurred for a return trip on that weekend.

d) For employees who reside in rental or leased accommodation at the TWHQ, cost of travel on intermediate weekends will be based on the lesser of a per diem rate

based on the daily costs of normally used local hotel/motel accommodation (meals included) or actual travel costs (less normal travelling costs).

e) Travel time will not be paid for return trips to home on intermediate weekends.

56.4 If the temporary assignment appears to cause the employee to reside separately from his/her family for a long duration, and for long distances, i.e., more than 100 kilometres, the supervisor may permit the employee to rent accommodation for his/her family near the TWHQ. In this situation, the employee will be reimbursed for all reasonable out-of-pocket costs, including the difference in rent paid out in the temporary location and any rent received from the principal residence.

56.5 Compensation for Daily Commuting To, and From, Temporary Work Headquarters

a) When an employee and supervisor have mutually agreed that the employee may commute to the TWHQ on a daily basis, the employee shall be compensated for his/her travel time in accordance with the provisions of Article 59 ("Travel Time").

The use of a Hydro One vehicle will be one of the commuting options considered.

If a Hydro One vehicle is not used, the employee shall be compensated for his/her travel costs (i.e., public transportation costs or cents per kilometre, whichever, in the Supervisor's opinion, is the most reasonable considering the travel time and transportation expenses involved) in addition to his/her travel time.

The total amount of reimbursement for the employee's travel time and travel costs will be up to a maximum of the expenses that would have been incurred if the employee were to remain at the Temporary Work Headquarters (lodging and meals). In determining this maximum, consideration will also be given to the expenses that would have been incurred if the employee had used a Hydro One vehicle.

b) When an employee commutes daily, he/she is required to be at the Temporary Work Headquarters at normal starting time and remain until normal quitting time.

Note: Where the planned duration of the assignment at a Temporary Work Headquarters is greater than one year, the employee will be eligible for full relocation assistance.

56.6 Exception

This Article does not apply to employees who on a daily or short-term basis may be required to work at a number of different work headquarters. In these cases, local management will determine the appropriate compensation treatment, but such compensation will not be less than that applicable to other employees under this Article.

PART XII - TIME WORKED OUTSIDE NORMAL HOURS

57 ON-CALL SERVICE

The following on-call service provisions shall apply.

57.1 Definition

On-call service is the requirement to be available outside normal work hours to meet unusual conditions, satisfy needs for assistance or direction, and return to work within a reasonable time, as specified by the supervisor. During the period of assignment, the staff member must be capable of responding. Normally, employees are not expected to be on call for a continuous, long-term period.

57.2 Payment

57.2.1 Compensation for on-call service is applicable in the following cases:

a) there is a regular need for it (e.g. weekly, monthly, annually) and;

b) the supervisor formally notifies the employee of the assignment.

57.2.2 The on-call service payment for any 16-hour period outside normal work hours is one half hour per day calculated at ***Step 9*** MP4/TMS5.

57.2.3 The on-call service payment for any 24-hour period outside normal work hours (i.e., Saturday, Sundays, Statutory Holidays and granted days) is one hour per day calculated at ***Step 9*** MP4/TMS5.

57.2.4 The on-call service payments specified above will apply only to the time periods as specified.

58 OVERTIME

The following provisions shall apply to employees when assigned to work overtime.

58.1 The method of compensation, for authorized overtime, may be money or time off at the appropriate premium rate. The employee or the supervisor may propose the method of payment, but it is the supervisor's responsibility to approve the method of payment most compatible with the unit's needs. Prior understanding between the supervisor and employee is desirable.

58.2 Day Workers

Overtime Worked	**Overtime Hours**	**Rate of Payment**
Monday to Friday	Authorized overtime beyond normal scheduled hours worked in the day	Time and one half (T-1/2)
Saturday	Authorized overtime	Time and one-half (T-1/2)
Sunday	Authorized overtime	Two times (2T)
Statutory Holiday	Authorized overtime	Monday to Friday: Two times

		(2T) for all unscheduled hours plus a Statutory Holiday credit. Saturday: Two times (2T) for all unscheduled hours worked.

58.3 Shift Workers

Overtime Worked	**Overtime Hours**	**Rate of Payment**
Scheduled Work Days	Authorized overtime beyond normal scheduled hours worked in the day.	Monday to Saturday: Time and one half (T-1/2) Sundays and Statutory Holidays*:* Two times (2T)
Scheduled Days Off	Authorized overtime on a normally scheduled day off.	Monday to Saturday*:* Time and one-half (T-1/2). Sunday: Two times (2T). Statutory Holidays (Monday to Friday): Two times (2T) plus a Statutory Holiday credit for hours worked up to normal hours for the day. Statutory Holiday (Saturday)*:* Two times (2T).

58.4 For OSS and TMS staff required to work overtime and supervise staff receiving a higher overtime rate than that paid under Sections 58.2 and 58.3 above, the treatment shall be as follows: OSS and TMS staff receive two times their base hourly rate for all work, as described above, performed outside the first four clock hours after normal quitting time, Monday to Friday, and for all such work performed on Saturday.

58.5 In addition to employees covered under Subsection 58.4 employees who are directly involved in the operation, maintenance or construction of production, transmission or distribution facilities (exclusive of head office staff) and who directly supervise or work beside PWU employees will be compensated with the equivalent to PWU overtime premiums for all overtime worked, including the minimum payments received by PWU staff for both emergency and scheduled overtime. Employees work beside PWU employees if, as a regular part of their job, they are required to work with PWU staff on essentially the same job, under the same general conditions, and their presence at site for the overtime in question is necessary for task progress.

Employees may be designated as eligible under the above on an on-going basis or on an assignment by assignment basis at the discretion of Hydro One.

58.6 Recording Overtime

Management shall record assigned and paid overtime and will report the same to the Society every 6 months.

59 TRAVEL TIME

The following provisions shall apply to employees who are required to travel on business for Hydro One.

59.1 General

Some traveling time outside of normal hours of work to and from work locations, other than the regular work headquarters, is an inherent part of many jobs, for which no additional compensation is normally made.

59.2 Excessive Travel

a) It is recognized that in some situations travel might be excessive. In these cases, the preference is for the supervisor and the employee to arrive at a mutual agreement as to what constitutes "excessive". This determination should be based on the following considerations:

- the amount of travel time that is required (hours per day, week and month)
- the choice of travel options
- the cost of travel choice/option
- if the employee travels with PWU employees (i.e., internal relativity)
- the time above and beyond the employee's normal travel time between home and normal work headquarters
- the desire to compensate for travel time with time off

Where there is no mutual agreement, excessive travel time shall be defined as follows and compensated at straight time:

- the travel time in excess of one hour at the beginning and end of the normal scheduled day and greater than the employee's normal travel time; OR
- where the daily rate is not exceeded, the travel time in excess of five hours per week greater than the employee's normal travel time; OR
- where neither the daily nor weekly rate is exceeded, the travel time in excess of twenty (20) hours per month greater than the employee's normal travel time.

b) When a special assignment calls for departure from the employee's home in the evening, or on a regular day off, time spent in travel will be compensated at straight time.

59.3 Emergency Overtime Work

Non-Prearranged Overtime Work: Travel time will be paid at the appropriate overtime rates for any work outside and in addition to normally scheduled hours for which there has been no pre-arrangement and an extra trip is required. Notification for prearranged overtime must be given at least 24 hours in advance of the start of such work.

59.4 Attendance at Seminars, Conventions, Etc.

a) When an employee attends a convention, seminar, training course, or similar function and does not arrive at the destination or depart from it until after normal work hours, no additional time allowance will be paid, i.e., this travel time will be considered as part of the employee's contribution to attendance at a mutually benefiting function of this nature.

b) Where Hydro One directs an employee to take a training course, travel time will be compensated in accordance with Article 59.2 .

59.5 Flexibility

Variations to the provisions of this Article made by agreement between the supervisor and the employee are permitted, subject to Director approval.

60 SHIFT WORK (M&P, TMS))

60.1 Definitions

Shift: All scheduled hours of a shift are considered to occur in the calendar day that the shift ends.

Scheduled Work: The hours of work assigned as per the shift schedule. Scheduled work cannot include overtime.

Positive/Negative Time Balances: Total hours accumulated in a time bank less the product of the normal scheduled hours of work for the position times the number of weeks since the time bank was previously balanced to zero. The result may be positive or negative.

60.2 Shift Workers

Consultation with the Society will occur prior to implementation of any future change to scheduled hours. Hours of Work will not be changed as a result of this Article.

Some jobs are shift work jobs e.g. Shift Operating Supervisors. Management reserves the right to put incumbents in these jobs on shift.

The job evaluation plan used to evaluate M&P jobs will be used as the vehicle to determine the relative worth of M&P shift positions within the shift family of jobs, and to establish appropriate relativity between positions in this family and other non-shift M&P positions.

The requirement to obtain and maintain a license(s) to hold a shift position shall be identified in the job document (description and specification).

The number of personnel provided per shift position shall be such that no regularly scheduled overtime will be required. Due to the nature of Hydro One’s operations, it may be necessary for employees on shift to work some overtime.

Management shall retain the right to place employees in shift positions for training and development purposes provided that the implications of possible classification changes

on completion of the shift development phase are fully identified to the incumbent before the shift position is accepted.

Management shall provide an opportunity for input from employees prior to establishing shift schedules.

Management will use reasonable efforts to provide a minimum of seven (7) days' notice for shift workers when their hours of work, as shown on the regular schedule, are to be changed, except in the case of a forced unit outage or for reasons of equipment failure or safety. Management will use reasonable efforts in revising the regular schedule so as to provide the following minimum hours off between shifts:

a) Shift change notices between 12-hour shifts will provide at least 12 hours off.

b) Shift change notices from a 12-hour shift to an eight-hour shift will provide at least 12 hours off.

c) Shift change notices from an eight-hour shift to a 12-hour shift will provide at least 15 hours off.

d) Shift change notices between eight-hour shifts will provide at least 15 hours off.

60.3 Shift Allowances (M&P, TMS)

a) Shift Premiums

- Shift work on Saturdays and Sundays: 50% of 95% of MP4 ***Step 9*** rate per hour worked.

- Shift work on statutory holidays: 95% of MP4 ***Step 9*** rate per hour worked.

The Statutory Holiday shift premium shall be paid on an actual hourly-as-worked basis.

b) Shift Differentials

- For work on an 8-hour afternoon shift (1600 - 2400 hours) - 70¢ per hour worked

- For work on an 8-hour night shift (0000 - 0800 hours) - 95¢ per hour worked

- For work on a 12-hour night shift only - $1.10 per hour worked.

60.4 Information Technology Organizations (M&P)

In information technology organizations where the shift allowance payable to an M&P Shift Supervisor does not amount to at least 112% of the shift-related payments received by the PWU-represented staff working the same shifts, an annual adjustment will be made to the shift allowance for the M&P Shift Supervisor.

Until Hydro One is able to solve the relativity problem in information technology organizations, M&P shift supervisors shall receive an annual adjustment which would result in a 12% differential between their shift allowance and the shift-related payments

received by the PWU-represented staff working the same shifts. Where a 12% differential exists, no annual adjustment will be made.

Employees in information technology organizations who either start or leave an M&P shift position during the year will receive a monthly pro-rated allowance. One-half month's tenure is necessary for receipt of the allowance for that month.

60.5 Ten Hour Shifts

Hydro One may assign employees covered by this Article to 10 hour shifts, without a vote, with the exception of employees subject to the Letter of Understanding re “Hours of Work for Field Management and Professional (FM&P) Staff” dated July 2, 1996.

The following conditions shall apply:

a) Notice

Management will use reasonable efforts in revising the regular schedule so as to provide the following minimum hours off between shifts:

i) Shift change notices between 10-hour shifts will provide at least 12 hours off.

ii) Shift change notices between a 10-hour shift to a 12-hour shift or vice versa, will provide at least 12 hours off.

iii) Shift changes notices from a 10-hour shift to an 8 hour shift or vice versa will provide at least 15 hours off.

b) Shift Differential

- First shift - 0600 - 1800 hours - no shift differential
- Second shift - 1400 - 0200 hours - $0.70 differential per hour worked

c) Shift Premium

- Shift work on Saturdays and Sundays - 50% of 95% of MP ***Step 9*** rate per hour worked.
- Shift work on statutory holidays - 95% of MP4 ***Step 9*** rate per hour worked.

- The statutory holiday shift premium shall be paid on an actual hourly-as-worked basis.

d) Special Circumstances

Collective Agreement provisions for time off shall apply except as modified for the following Special Circumstances;

On 10-hour day/shifts the following items will be credited for pay purposes on an hour-for-hour basis:

i) Vacation
ii) Floating Holidays
iii) Sick Leave

iv) Leave of Absence/Unpaid Time Off
v) Travel Time
vi) Medical and Dental Consultation - Periods of less than four hours shall not be deducted from sick leave credits.

a) In the application of the above-noted items (i) (ii) and (iii), a “days” entitlement will mean eight hours, i.e. a 10-hour day/shift will constitute one day and two hours deducted from credits.

b) When an employee is scheduled to work a 10-hour day/shift and one of the under-noted conditions occurs, a “day” will be considered to be 10 hours.

i) Jury duty and attendance at court
ii) Funerals
iii) Moving Day
iv) Time Charges for Attendance at Delegates’ Council and meetings of the Society’s Board of Directors.

60.6 Periodic Shifts for Non-Shift Workers

1) Periodic shifts for non-shift employees shall be allowed to mirror shifts created under PWU "periodic shift" agreements in force at the time of settlement, when the Society employee(s) provides direct supervision or technical support (including inspection/testing) alongside such PWU-represented employees for:

a) field settings
b) laboratory settings.

2) In the circumstances described in paragraph 1, above, an employee shall be assigned to periodic shifts for a maximum of 60 working days per fiscal year in the aggregate, under applicable shift provisions of the Collective Agreement including normal shift differentials and premiums. Where the PWU supply non-shift workers, the Society shall not unreasonably withhold its consent to supply consistent supervision for the duration of the project**.**

3) This Article does not alter existing local agreements in force at the time of settlement, including agreements reached pursuant to Article 71, and modifications of the provisions of paragraphs 1 and 2 are negotiable as local agreements pursuant to Article 7.

4) The parties may review the application and operation of this Article prior to the end of the Collective Agreement.

61 SHIFT WORK (FM&P)

61.1 Intent

- Assignment of FM&P staff to shift will normally be on a voluntary basis. However, in the absence of any qualified volunteers, Hydro One reserves the right to appoint specific individuals to perform the work.

- An employee who has volunteered may opt out of a shift arrangement by giving one month's written notice, subject to the above.

- Except in an emergency situation, at least seven days' notice will be given with respect to shift change notices.

- Hydro One will propose shift arrangements and seek the Society's input on proposed shift arrangements.

- A minimum period for a shift is four days.

- Hydro One reserves the right to terminate specific shift arrangements by giving one month's written notice.

61.2 Definitions (See Article 60)

61.3 Shift Differentials

Scheduled hours worked in shifts commencing during the following hours shall have the following shift differential apply:

a) two- or three-shift coverage of eight hours or less:

07:00 – 10:00	Zero differential
10:00 – 18:00	An amount equal to one-seventh of FM&P 12 reference point rate per hour worked
18:00 – 07:00	An amount equal to one-fifth of FM&P 12 reference point rate per hour worked

b) two-shift coverage of greater than eight hours:

06:00 – 10:00	Zero differential
10:00 – 06:00	An amount equal to one-fifth of FM&P 12 reference point rate per hour worked

61.4 Shift Premiums

Scheduled hours worked on Saturday and Sunday will be paid at an amount equal to the employee's base rate plus half of FM&P 12 ***Step 9*** rate per hour worked.

For scheduled work performed on a statutory holiday, the amount paid equals the employee's base rate plus one times FM&P 12 ***Step 9*** rate per hour worked. An additional day off will be scheduled in lieu of the statutory holiday.

61.5 Overtime

Authorized overtime beyond the normal scheduled shift hours shall be compensated in accordance with the overtime provisions of this Agreement.

61.6 Time Balancing

A time bank will be established for each employee to record the total number of scheduled hours worked plus scheduled hours paid for vacation, sick leave, time off in lieu or other approved paid time off. The time bank will be reduced to zero after the duration of the shift schedule.

For positive time balances the employee may elect:

i) payment at time and a half for 50% of the hours and double time for the remainder;

or

ii) time off at straight time.

Negative time balances existing at the end of the shift schedule, or caused by interruption or cancellation, will be written off.

Overtime hours are not counted in the time bank.

61.7 Special Circumstances

In the application of the under-noted items a reference under the appropriate provision to "days" entitlement will mean eight hours. For example, a 12-hour shift will constitute one and one-half days deducted from credits. Items (e) and (f) will be credited, for pay purposes, on an hour-for-hour basis.

a) Vacation

b) Floating Holidays

c) Sick Leave

d) Leave of Absence

e) Travelling Time Outside Normal Working Hours

f) Payment for Relief Work

When an employee is scheduled to work shift and one of the following items applies, a "day" will be considered to be one scheduled shift.

a) Legal Hearings

b) Funerals

c) Moving Day

61.8 10 Hour Days/Shifts

On 10-hour days/shifts the following items will be credited for pay purposes on an hour-for-hour basis:

a) Vacation

b) Floating Holidays

c) Sick Leave

d) Leave of Absence/Unpaid Time Off

e) Travel Time

f) Medical and Dental Consultations – Periods of less than four hours shall not be deducted from sick leave credits.

In the application of (a), (b) and (c) above, a “day’s” entitlement will mean eight hours i.e., a 10-hour day/shift will constitute one day and two hours deducted from credits.

When an employee is scheduled to work a 10-hour day/shift and one of the following conditions occurs, a “day” will be considered 10 hours:

- Jury duty and attendance at court
- Funerals
- Moving Day
- Time Charges for Attendance at Delegates’ Council and Meetings of the Society Board of Directors.

On a 10-hour day/shift, basic Statutory Holiday and special time off provisions remain unchanged i.e., time off and pay entitlements will continue to be calculated on an eight-hour basis. Employees will be given the opportunity to recover two hours when a Statutory Holiday falls on a scheduled 10-hour day/shift and the employee is not given the opportunity to work. Such hours shall be worked at straight time and shall be scheduled by mutual agreement between the employee and his/her supervisor.

On a 10-hour day/shift, authorized overtime beyond 10 hours work on scheduled workdays and all hours worked on scheduled days off shall be compensated in accordance with Article 58.

62 COMPENSATION AND WORKING CONDITIONS - 12-HOUR SHIFT SCHEDULE

The following provisions apply to employees who work a 12-hour shift schedule.

62.1 General Provisions

62.1.1 The 12-hour shift schedule will average the regular scheduled hours per week for employees and will indicate the days and hours of work (shift) for each employee. Payment will be determined in accordance with this Article and as outlined elsewhere in Article 60 ("Shift Work - M&P, TMS)".

62.1.2 The implementation of 12-hour shift work will be on the understanding that its application will not result in any appreciable increase in cost to Hydro One.

62.1.3 Hydro One or the Society shall have the right to terminate 12-hour shift work. Written notice must be provided by the Department Manager to the Society President or vice versa.

a) If the notice is two months prior to the end of the current schedule, 12-hour shift work will terminate at the end of the current schedule. Reason(s) for termination will be provided by the respective party.

b) The 12-hour shift schedule may be cancelled immediately by Hydro One should any of the following be adversely affected: safe operation of plant; health of shift workers; public safety.

Shift work monitoring criteria may include employee health, employee safety, employee attitude, attrition, overtime availability, insufficient notice for shift change, operating error, productivity, shift turnover and cost.

c) When employees at any Department have exercised the right to opt out of time-balanced 12-hour shift work, no new 12-hour shift work may be introduced for those employees without the mutual agreement of local management and the local Society Unit Director.

62.1.4 All policies and agreements which normally apply to employees will continue to apply unless specifically stated otherwise in this Article.

62.2 Shift Differential

A shift differential of $1.10 per hour worked will be paid to 12-hour shift employees for each night shift hour worked, in accordance with Article 60.3 ("Shift Work (M&P, TMS").

62.3 Shift Premium

Hourly shift allowances shall be paid to M&P and TMS shift workers, for hours worked as follows:

Shift work on Saturdays and Sundays	50% of 95% of the MP4 ***Step 9*** rate per hour worked.
Shift work on Statutory Holidays	95% of the MP4 ***Step 9*** rate per hour worked.

The Statutory Holiday shift premium shall be paid on an actual hourly-as-worked basis.

62.4 Overtime

62.4.1 Authorized overtime beyond 12 hours of work on scheduled workdays Monday to Saturday inclusive and all hours worked on scheduled days off Monday to Saturday inclusive shall be compensated in accordance with the overtime provisions of this Agreement.

62.4.2 Authorized overtime beyond 12 hours of work on scheduled workdays which are Sundays or Statutory Holidays and all hours worked on scheduled days off which are Sundays or Statutory Holidays shall be compensated in accordance with the overtime provisions of this Agreement.

62.5 On-Call

On-call service payments will not be applied to those employees on the Minimum Availability Requirement (MAR) list (see Section 62.8).

62.6 Special Conditions

62.6.1 The following items will be credited for pay purposes on an hour-for-hour basis:

a) Vacation

b) Floating Holidays

c) Sick Leave

d) Time Off Without Pay

e) Travel Time

f) Medical and Dental Consultations - Periods of less than four hours shall not be deducted from sick leave credits.

62.6.2 In the application of the above-noted items (a), (b) and (c), a reference under the current provisions of this Article to a "day's" entitlement will mean eight hours. Therefore a 12-hour shift will constitute one and one-half days deducted from credits.

62.6.3 When an employee is scheduled to work a 12-hour shift and one of the under-noted conditions occurs, a "day" will be considered to be 12 hours.

62.6.4 Jury duty and attendance at court.

62.6.5 Funerals.

62.6.6 Moving Day.

62.6.7 Time Charges for Attendance at Delegates' Council and meetings of the Society's Board of Directors.

62.7 The basic Statutory Holiday and special time off provisions remain unchanged in that time off and pay entitlements will continue to be calculated on an eight-hour basis.

62.8 Minimum Availability Requirement (MAR) List

62.8.1 In order that a sufficient number of shift employees are on duty to maintain and ensure a continuous operation at any Department utilizing 12-hour shifts, a MAR List will be prepared.

62.8.2 A sufficient number of employees, by job classification and qualifications, will be determined by Hydro One. Employees will volunteer their willingness to be called in to work in this situation, by placing their name on the MAR List under the day(s) they wish to be called. If there are no volunteers, Hydro One

reserves the right to assign employees to the MAR List. Employees will not be placed on the MAR List who are scheduled to work on an adjoining shift.

62.8.3 An employee on the MAR List agrees to be available during the Required Availability Period (RAP), to report to work to cover short-term absence. The RAP is the period of time commencing two hours prior to each shift change and ending one hour after each shift change.

62.8.4 If an employee whose name is on the MAR List cannot be available for the specified day(s), the employee must arrange for a substitute acceptable to Hydro One, whose name then would be added to the MAR List.

62.8.5 Volunteering or being assigned to the MAR List for RAP periods does not entitle the person to any compensation, i.e., on-call pay, etc., nor does it guarantee that overtime will result.

62.8.6 In the event that an employee is called to work from the MAR List, he/she will be entitled to overtime premium rates (outlined in Section 62.4) for all hours worked.

62.9 Twelve-hour shift work may be introduced when the following conditions are met:

62.9.1 If local management determines that a 12-hour shift work arrangement is appropriate, a vote will be held in the affected work unit(s).

62.9.2 More than 50% of those eligible to vote in the work unit(s) must vote in favour of 12-hour shift work.

62.9.3 The vote will be determined by a secret ballot scrutinized by the appointees of Hydro One and the Society.

APPENDIX I

Master Schedule Guidelines

1.0 All work groups must follow the same schedule.

2.0 An excessive number of 12-hour shifts cannot be worked in sequence. Three would be the maximum for nights; four would be the maximum for days.

3.0 At least 48 hours off will immediately follow each sequence of shifts. At least two regular days off will be schedule in each week.

4.0 Time balances should cycle between +36, with an additional +4 hours as an exception.

5.0 Other specific rules in the Article should also be noted.

Note:

1. Supernumerary shifts will be worked between the hours of 08:00 and 16:00. These shifts will be spread evenly throughout the year except for July and August. Supernumerary shifts will only be scheduled in July and August if required for outage schedules.

2. For hours actually worked by an individual the following implementation rules apply:

    2.1 Maximum of 3 night shifts in a row, except for MAR list needs.

    2.2 A minimum of 48 hours off per pay period, except for MAR list needs

63 SHIFT TURNOVER

63.1 A shift turnover allowance will be paid to employees who have been authorized to perform shift turnovers, based on the criteria in Sections 63.2 and 63.3 and in compliance with the chart below.

63.2 Only one person will be paid for each shift turnover, either the incoming or the outgoing shift, but not both.

63.3 Rights to overtime are waived in favour of the above allowance when performing normal shift turnovers. The exception to this is in cases where the turnover is 30 minutes or longer due to unusual circumstances. In such cases all time beyond normal working hours will be compensated according to the overtime provisions of this Agreement in place of the allowance.

- Payment Per Shift Turnover -

Salary Grade	
MP6	$16.40
MP5	15.30
MP4	14.40
MP3	13.50
MP2	12.65
TMS 05	12.60
TMS 04	11.80
TMS 03	11.10
TMS 02	10.40
TMS 01	9.70

PART XIII- WORKING CONDITIONS

64 REDEMPLOYMENT, SURPLUS STAFF PROCEDURE AND CHANGE OF EMPLOYER

64.1 Scope

This Article applies to the redeployment or transfer of employees within Hydro One and from Hydro One to a new employer to whom a portion of Hydro One's business is transferred.

This Article will apply to all employees except temporary employees, and takes precedence over other provisions of this Collective Agreement with regard to vacancies and job placements unless otherwise specified. Article 33 describes the entitlements for temporary employees. Employees on leave (e.g. LTD) or on foreign assignments will be neither advantaged nor disadvantaged upon return from the leave.

64.1.1 Preference for Regular Employees

Surplus regular employees will be retained in preference to temporary employees under the following conditions:

- within the same Unit of Application;
- where the regular employees are qualified to perform the work and are able to perform the job within a reasonable period of time given the length of the assignment;
- where the work is normally performed by Society-represented employees.

Therefore, when there are both regular and temporary employees within the same Unit of Application and a surplus arises, the surplus regular employees will be retained over the temporary employees, if the conditions above are satisfied.

In situations where there are surplus regular employees, they will be used in preference to temporary employees, if a temporary requirement arises and if the above conditions are satisfied.

64.1.2 Grievability/Arbitrability

Employees may use the grievance/arbitration procedure to appeal decisions of the joint teams referred to in this Article if they believe they have been treated unfairly. JRPT decisions and processes are grievable. It is expected that the parties will support their decisions and recommendations. This is not intended to prevent the parties from jointly agreeing to change their decisions and recommendations. The recommendations and decisions by other Joint Redeployment Planning Teams and other Joint Reasonable Offer Teams are without prejudice and cannot be used as precedents in grievance arbitration. Any agreements reached by the parties within the scope of Article 64 are neither grievable nor arbitral.

64.2 Preamble and Principles of Operation

It is intended that the parties will make their best efforts to interpret, apply and administer the provisions of this Article to reflect a balance among the principles set out below and throughout this Article.

The parties are committed to sustaining a work climate that supports a high level of employee commitment, performance and job satisfaction. The following principles reflect our underlying values and beliefs and provide the direction on which this Article is founded:

64.2.1 Career change should be expected and viewed positively.

64.2.2 Individuals are responsible for their own career decisions and should be involved in developing options affecting their careers.

64.2.3 Hydro One and The Society recognize the value of retaining, utilizing and enhancing the asset of employee skills and abilities.

64.2.4 Redeployment issues will be discussed openly and employees and their representatives should be involved in these discussions as early as possible.

64.2.5 Employees will be provided with access to opportunities for learning and development and will take a proactive role in their development to prepare for the future.

64.2.6 It is in the best interests of both our customers and our employees for Hydro One to be a viable and healthy business entity.

64.2.7 Redeployment policies must reflect a balance between the fundamental interests of Hydro One and its employees.

64.2.8 Employees will be treated fairly and with respect and dignity.

64.2.9 Hydro One and The Society recognize that there will be competing individual interests and will structure redeployment strategies which will minimize the occurrence of that competition and its negative impact.

64.2.10 A commitment to short and long range planning is critical for the effective and efficient utilization and deployment of employee skills***.***

64.3 Definitions

64.3.1 “ADVERSE IMPACT” shall mean that, as a result of a Hydro One business decision, an employee does not have an ongoing position for which he/she is qualified or for whom the only available ongoing position for which he/she is qualified represents a demotion and for which he/she has not voluntarily applied.

64.3.2 “ALLOCATION” shall mean the lateral placement of an employee into an ongoing position where the exercise of employee choice is not required on the basis of the rules set out in Subsection 64.***7*** and there is no adverse impact.

64.3.3 "BASIC PAYMENT IN LIEU OF NOTICE" shall mean 24 weeks.

64.3.4 "CHANGE OF EMPLOYER" shall mean any sale, lease, transfer or any other transaction between Hydro One and any other entity, by virtue of which the ownership or control over any part of the company's business or assets becomes held by such other entity and some or all of the Company's employees become employees of a new employer as part of the commercial transaction.

64.3.5 "CONSENSUS" shall mean an agreement on a given issue that all parties to the agreement can live with and publicly support.

64.3.6 "DECLARED SURPLUS" shall mean that the employee has insufficient seniority and/or qualifications to be matched to an ongoing position that is deemed to be a reasonable offer in his/her unit of application.

64.3.7 "INCUMBENCY" is a concept that will be used as a part of a redeployment process. An employee may be identified as an incumbent only if the position meets the following criteria:

the majority of the core functions/key accountabilities are the same[5]**;**
unchanged location;
unchanged hours of work;
unchanged salary grade or where the salary grade increases as a result of the prospective addition of duties/accountabilities pursuant to Clause 66.3.1.c.

64.3.8 "LATERAL POSITION" shall mean a job paid from:

a) the same salary schedule and is the same salary grade as the employee's current grade;

or

b) a different salary schedule in which the salary level is equivalent to the employee's current job measured by salary grade Reference Points (100%).

64.3.9 "LATERAL PLACEMENT" shall mean the placement of an employee into an ongoing lateral position or into an ongoing position that is upgraded pursuant to Clause 66.3.1.c.

64.3.10 "MAPPING" shall mean the lateral placement of an employee into an ongoing position where the exercise of employee choice is required on the basis of the rules set out in 64.7 and there is no adverse impact.

64.3.11 "ONGOING POSITION" shall mean an assignment other than a relief of rotational assignment. An employee's ongoing position determines his/her base jurisdiction for the purposes of employment continuity and other entitlements (see Article 5).

64.3.12 "PRIORITY CONSIDERATION" shall mean an obligation to select the most suitable candidate from amongst the qualified surplus applicants for advertised vacancies for whom the vacancy represents a lateral or lower-rated position. If there are no qualified surplus applicants Management is then obliged to select

[5] The operational meaning as determined by the JRPT in adverse impact situations.

the most suitable candidate from amongst those surplus applicants who can become qualified in a reasonable period of time. "Priority consideration" is provided to surplus employees.

64.3.13 "PROMOTION" shall mean a position in which the demands and responsibilities are greater than in the employee's current job and the position is a minimum of one salary grade higher than the employee's current job if rated on the same salary schedule or the equivalent of one salary grade higher if rated on a different salary schedule.

64.3.14 “QUALIFIED” shall mean having the qualifications and experience required to perform the job within a reasonable period of time, normally not expected to exceed six months.

64.3.15 “REDEPLOYMENT” shall mean the staffing of new or changed organizations in accordance with the provisions of this Article.

64.3.16 "SENIORITY" shall mean all prior service with Ontario Hydro *and* Hydro One or other eligible seniority as per the transition provisions in Section 9.4 regardless of breaks in employment, employee category and/or bargaining unit/ representational status. Regular employees who currently work reduced hours or have done so in the past, will have such service calculated as if it were full-time. In the event that a contractor is determined to be dependent, service shall be counted from the date of a declaration of dependent contractor application to the OLRB or the date of joint agreement between Hydro One and The Society regarding contractor status.

64.3.17 “SERVICE" for the purpose of calculating severance shall mean the employee's Established Commencement Date (ECD) and does not include any external experience credits. Employees who have received severance pay under this Article shall not be entitled to the service used to calculate previous severance pay in any future employment with Hydro One.

64.3.18 "SERVICE BASED PAYMENT IN LIEU OF NOTICE” shall be based on the surplus employee's Service Recognition Date (SRD) plus External Experience Value (EEV).

64.3.19 “SUBSIDIARY COMPANY” shall mean a Hydro One subsidiary or holding company.

64.3.20 “VACANCY TRANSITION PHASE” (VTP) shall mean a period not to exceed six weeks following the conclusion of a mix and match during which vacancies are unfrozen and surplus employees who elect to remain for this phase have the right to priority consideration for vacancies in accordance with Subsection 65.6.3.

64.4 Notification and Involvement of The Society

64.4.1 Principle of Prior Involvement

Prior to making final decisions on significant organizational or operational changes that have an adverse impact on the employment continuity of Society-represented employees, Hydro One will establish a team in a timely manner

which will include representatives appointed by The Society. The team will examine how the organizational or operational change will be implemented and will strive to develop mutually acceptable recommendations in a timely manner for the appropriate level of Management based on this examination.

64.4.2 Involvement

The Society will be involved in all decisions respecting how Society represented employees are treated with respect to this Article.

There are two levels of involvement in this Article. They are as follows:

a) Joint Consultation

Hydro One and The Society will discuss the issue and attempt to reach a jointly acceptable course of action.

Failing an agreement, Hydro One will make the final decision.

b) Joint Recommendation

Hydro One and The Society will attempt to reach consensus on an issue that will form the basis of a recommendation to senior management.

In the event a JRPT does not reach consensus on the appropriate Unit of Application, the default Unit of Application defined pursuant to Subsection 64.10.1 will be used. Other outstanding issues will be submitted by either party to a standing arbitrator.

64.5 Application

64.5.1 This Article applies to all situations where:

- There is a change of employer for employees; and/or
- The employment continuity of employees is adversely impacted; and/or
- Positions with incumbents are transferred within/between subsidiary companies, relocated or significantly changed (e.g., a change to job duties and/or skills/qualifications and/or rate as covered in the job document) but where no adverse impact results.

These impacts may arise due to organizational and operational changes that include technological changes, workload changes, business process re-engineering and other circumstances.

64.5.2 Where there is no adverse impact, the provisions of 64.7 shall apply.

64.5.3 Where there is adverse impact, the provisions of 64.8 to 64.15 inclusive shall apply.

64.5.4 Where there is a change of employer, the provisions of 64.6 shall apply.

64.5.5 Hydro One shall consult with the Society regarding the applicable redeployment process (i.e., whether to use the “adverse impact” or the “no adverse impact” track) prior to redeploying employees.

64.5.6 Exceptions to mandated “freezes” on filling vacancies in the “change of employer”(Subsection 64.6.6) and “mapping” (Clause 64.7.6.2) processes may be permitted where the parties mutually agree.

Change of Employer

64.6 Change of Employer

64.6.1 This Section shall apply where there is a change of employer for some or all employees.

64.6.2 Hydro One recognizes the importance of securing for employees opportunity for continuing employment with the new employer and will endeavour to secure such opportunity for employees with the new employer.

64.6.3 In addition to Article 11, at the earliest possible time prior to the transaction, Hydro One further agrees that it shall provide in writing to the Society all available information relating to the new employer that is relevant to employees to the extent that circumstances reasonably permit. The Society agrees that confidentiality will be maintained.

64.6.4 Until such time as staff positions and numbers to be transferred to the new employer are provided to the Society, employees may apply to vacancies in accordance with the Collective Agreement. All applications from employees (“affected employees”) in the affected businesses or assets for laterals and demotions will be processed and considered unless the move would seriously jeopardize the viability of the work unit.

64.6.5 Hydro One will provide the Society with a listing of the potentially affected employees, positions and numbers to be transferred to the new employer as soon as possible. This listing will specifically identify any employees who are from an acquired municipal electrical utility (MEU) and who have been provided with a period of employment protection under the Hydro One Acquisitions Letter of Understanding (LOU#7).

64.6.6 Commencing on the date that Hydro One provides the information described in Subsection 64.6.5, displacements into and selections into or out of the affected businesses or assets shall cease.

64.6.7 Where the number of affected employees exceeds the new employer’s needs or where there is adverse impact, the following shall apply:

64.6.7.1 Article 64.8 shall apply to affected employees.

64.6.7.2 Where there continues to be adverse impact, affected employees will be placed through an expedited mix and match process in accordance with Sections 64.9 to 64.10.3. Where there is no

adverse impact, the provisions of Subsection 64.6.8 shall apply. Affected employees who are placed in positions with the new employer through the mix and match process will transfer to the new employer.

64.6.7 Affected employees who are not placed pursuant to Clause 64.6.7.2 will be redeployed in Hydro One in accordance with the applicable provisions of this Article (i.e., either the “no adverse impact” or the “adverse impact” tracks).

64.6.8 Where the number of affected employees does not exceed the needs of the new employer or where there is no adverse impact for these employees, affected employees will be redeployed into positions with the new employer in accordance with Section 64.7.

64.6.9 Except for employees who terminate pursuant to Section 64.8, employees who refuse to accept a placement with the new employer in accordance with the applicable process (i.e., Subsection 64.7.5 for employees who are allocated, Clause 64.7.6.9 for employees who are mapped, and Sub-clause 64.10.3.v.9 for employees who are mixed and matched by a JRPT) shall be deemed to have voluntarily terminated Hydro One without severance.

64.6.10 Where as a result of the transfer of employees to a new employer an adverse impact arises for employees remaining at Hydro One, the latter shall be redeployed in accordance with the “adverse impact” provisions of this Article.

64.6.11 The Society agrees that no grievances under the Ontario Labour Relations Act or any other applicable legislation will be undertaken as a result of the implementation of this Section other than to enforce its terms.

No Adverse Impact

64.7 Allocation/Mapping

64.7.1 Where Hydro One redeploys employees and there is no adverse impact, employees shall be either allocated or mapped in accordance with the rules set out in this Subsection.

64.7.2 Hydro One shall consult with the Society prior to determining whether employees shall be allocated or mapped. Process decisions shall be communicated to the affected employees as soon as possible.

64.7.3 Employees shall be allocated where a whole work group/single classification is being transferred to a different organization and/or location and none of the conditions listed in Subsection 64.7.4 apply.

64.7.4 The conditions under which employees shall be mapped include any one of the following:

- A work unit or function is split within or between subsidiary companies; and/or
- Relocations are required involving positions with the same classification with more than one regular work headquarters; and/or
- Where there are a different number of incumbents than positions for which incumbency rights can be exercised; and/or
- Multiple qualified candidates for a lateral placement.

64.7.5 Where employees are to be allocated, the following rules shall apply:

- All employees shall be allocated;
- Employees shall “follow their work”;
- The placement of employees shall be reasonable within the meaning of Subsection 64.11.3. Employees who refuse to accept their placement offer shall be deemed to have voluntarily terminated employment with Hydro One without severance.

64.7.6 Where employees are to be mapped, the following rules shall apply:

64.7.6.1 The redeployment of employees shall take no longer than four (4) weeks from the date when Hydro One finalizes its organization.

64.7.6.2 During the mapping period all vacancies within the affected Division shall be frozen except pursuant to Clauses 64.7.6.6 or 64.7.6.10. Division shall mean the Divisional Default Unit of Application as defined pursuant to Subsection 64.10.1.

64.7.6.3 All employees shall be mapped.

64.7.6.4 Wherever possible, employees shall “follow their work”.

64.7.6.5 Employees may be promoted in the mapping process pursuant to Clause 66.3.1.c or where there are essentially no lateral placement opportunities or where the employee has been previously demoted through the application of Article 64 and no displacement of another employee will result.

64.7.6.6 Positions that do not have an incumbent or for which there are no qualified candidates for lateral placement within the affected organization will be filled through the advertised vacancy process pursuant to Section 65.6. The posting period shall be one week. Selections to these positions will be made before finalizing mapping decisions.

64.7.6.7 Under any of the conditions listed in Subsection 64.7.4 or otherwise where it is determined that employees shall be given the opportunity to express their preferences, subject to unit viability, “senior choice, junior force” shall apply. Employees shall have five (5) working days to submit their preferences.

64.7.6.8 If an employee is not an incumbent or following his/her work, he/she may request in writing a review of where he/she has been “draft mapped”. The Society and management will expeditiously jointly review this request and may make mapping amendments as necessary.

64.7.6.9 Placement offers shall be reasonable within the meaning of Subsection 64.11.3. Employees who refuse to accept a placement where he/she is the incumbent or where the assignment is reasonable may be deemed to have voluntarily terminated employment with Hydro One without severance.

64.7.6.10 Positions unfilled at the conclusion of the mapping process shall be advertised in accordance with Article 65.

Adverse Impact

64.8 Voluntary Surplus

In circumstances where Management is aware that job loss may occur, subject to work unit viability Hydro One will allow for voluntary termination by an employee in the affected work group. In such cases, employees who terminate their employment, will be entitled to 100% of their own basic and service-based payment in lieu of notice and severance entitlements, plus an additional week of severance for each completed year of service, to a maximum additional payment of 26 weeks' pay. The combined total of the employee severance entitlement, plus the additional week under this Section cannot exceed 78 weeks. The combined total of the payment in lieu of notice and severance entitlement cannot exceed 138 weeks. With the agreement of the Society, Hydro One may offer voluntary separation incentives such as focused pension incentives, retirement bridges etc.

Subject to any Canada Revenue Agency (CRA) rules and regulations, an employee may:

- Transfer a portion of any monies received into a RRSP; and/or
- Elect to receive his/her payment in one (1) lump sum or two (2) equal instalments over 2 consecutive calendar years. Where the employee elects two (2) instalments, Hydro One will make the 2nd payment within the first half of the 2nd year.

64.9 Set Up Joint Redeployment and Planning Team

Hydro One shall decide the organizational structure required to carry out approved work programs.

Hydro One and The Society will appoint an equal number of representatives to the Joint Redeployment and Planning Team (JRPT). This team will develop a redeployment plan which minimizes to the extent possible the effect on and number of employees to be declared surplus, consistent with the need to carry out Hydro One’s work and will be responsible for overseeing its implementation. The team is also responsible for communications to affected staff. The Joint Redeployment and Planning Team will develop its recommendations/decisions by consensus using problem solving techniques.

Senior Management (e.g., Directors, General Managers) shall meet to discuss with the Joint Redeployment and Planning Team the number and type of positions that will no longer be required.

64.10 Joint Planning - Responsibilities of the JRPT

a) The Joint Redeployment and Planning Team will prepare a report including decisions with respect to:

(i) The Unit of Application for identification of surplus staff;
(ii) The name of the standing arbitrator and outline of arbitration process;
(iii) The process and strategies used for redeploying staff within the Unit of Application;
(iv) The preparation of seniority lists and identification of surplus staff;
(v) Identification of separation incentives for the purpose of minimizing involuntary terminations.
(vi) The timetable of events, including specified deadlines, to ensure that the process is completed within the contractual timeframe.

b) Respond to questions and grievances related to its process and decisions.

c) Ensure that purchased services contracts are reviewed by Hydro One throughout the redeployment process.

d) Appoint JROT members.

64.10.1 Unit of Application

64.10.1.1 Definitions

Unit of Application shall mean the organizational unit (e.g., Department, Division, Business Unit, Subsidiary or a cross Hydro One grouping) in which seniority and the identification of surplus staff shall be administered.

Business Unit shall mean the organizational unit under a subsidiary President/CEO.

Division shall mean an organizational unit under a direct report to a subsidiary President/CEO.

64.10.1.2 Size of the Unit of Application

In determining the size of the unit for purposes of identifying who is surplus, the parties will be governed by the following:

- The size of the unit will be sufficiently large to provide a fair means for identifying the surplus employee(s).

- The size of the unit will be sufficiently small to minimize the disruption to both the employee and the work to be done.

A joint recommendation will be made in determining the size of the unit of application.

64.10.1.3 Default Unit of Application

Should the parties not agree to the size of the unit of application for the identification of surplus, then the unit size will be the Business Unit with this exception:

Where fewer than 10% of Society-represented employees in a Business Unit, and fewer than 20% of The Society-represented employees in the Division are adversely affected, then the default Unit of Application will be the Division.

64.10.1.4 Unit of Application Beyond the Business Unit

A JRPT may jointly recommend to a Vice-President or General Manager (or equivalent) that the Unit of Application should be expanded beyond the Business Unit in a surplus situation. If the recommendation is approved, the recommendation will be jointly discussed with the Business Unit(s) into which expansion of the Unit of Application has been recommended. If no jointly agreeable solution is achieved at this stage, the recommendation may be brought by either party to the Society-Hydro One Issues Team ***(“***Issues Team”) for consideration and resolution. In appropriate circumstances (e.g., Corporate Functions, Multiple Business Unit JRPTs), matters may be directly referred to the Issues Team.

64.10.1.5 With respect to the Hydro One organization effective ***July 1, 2007***, the default Units of Application shall be defined pursuant to the chart found at Appendix VII.

64.10.1.6 Where organizations have been split and adverse impact subsequently arises in any receiving unit with respect to the functions of these organizations, the default Unit of Application shall consist of the functions from the old organizational unit and new organizational units if applicable.

64.10.1.7 Employees covered by the FM&P Letter of Understanding dated July 2, 1996 will have a Unit of Application that consists of Hydro One.

64.10.1.8 All employees will normally be assigned to one and only one unit of application.

64.10.1.9 Where Hydro One establishes organizational units which do not clearly fit the definitions contained in the unit of application default provisions, the matter of the appropriate unit of application will be reviewed by the Issues Team***.*** The Issues Team will make a decision which ensures that surplus rights are fairly applied.

64.10.1.10 In the event of a change during the term of the Agreement that cannot be resolved by the parties, the following dispute resolution will be used:

a) The parties shall exchange written briefs within 10 working days of reaching impasse on the matter.

b) A mutually agreed arbitrator shall decide the matter within 10 working days after the briefs have been exchanged. The arbitrator has all the powers under the applicable Labour Relations Act.

c) The arbitrator shall hear the matter in the most expeditious manner possible, and shall only hear oral evidence where he or she determines that it cannot be determined on the basis of the written briefs and oral submissions.

d) The arbitrator shall issue an award within 5 working days of the hearing, setting out the default unit of application.

e) The JRPT shall continue to function and develop other elements of its report pending determination of the default unit of application through this process, and the outcome of this process does not preclude the JRPT from achieving consensus on a unit of application notwithstanding the arbitrator's award.

f) This process does not prejudice or waive any grievance rights under this Article, but the arbitrator's award on the default unit of application cannot be grieved.

64.10.2 Process for Staff Changes - Mix and Match

The Joint Redeployment and Planning Team will develop the mix and match procedures to fill positions in the new organizational structure from employees within the Unit of Application. The intent is to sort employees within the Unit of Application among the jobs in the new organization on the basis of qualifications and seniority. In the event there are no qualified employees from the Unit of Application, the positions will be advertised in accordance with Article 65.

JRPTs are expected to keep accurate records of the reasons for deeming employees not qualified. Upon request, the employee will be provided with the written reasons for being deemed not qualified.

64.10.2.1 Mix and Match Rules

1) No promotions except as specified, i.e., only laterals or demotions are permitted in a mix and match process. (Note: Exceptions are described in 64.10.2.1 (11) and 64.10.4 and includes prospective reclassifications pursuant to Clause 66.3.1.c).

2) Applies within the affected Unit of Application except as specified at Rule 13.

3) The process must be open and participatory and involve individual employees in planning and an agreed-upon form of posting within the Unit of Application.

4) In the event there are more qualified candidates than positions available in the new organization, then the most senior of the qualified candidates will be selected to fill the positions.

5) If a job offer is found to be unreasonable by the Joint Reasonable Offer Team, then the JROT will re-examine the match. If no reasonable job is available, then the employee will be declared surplus with full entitlements.

6) Employees who accept a lower-rated position or who experience a reduction in hours of work as a direct result of Mix and Match will be entitled to the provisions of 64.12 “Compensation”.

7) Pregnancy Leave and Paid Parental Leave

The employee should be treated as though he/she is at work.

8) Other Leaves/Absences

The employee will under normal circumstances participate in the Mix and Match process.

9) Out-of-Province Assignments

Refer to 6.4 “Employment Continuity during Temporary Out-of-Province Assignments”.

10) Temporary Assignments/Rotations

Employees will exercise the redeployment rights applicable to their ongoing positions.

11) Employees Previously Demoted via Article 64

An employee previously demoted through the application of Article 64 is eligible for consideration at up to his/her previous higher level during a subsequent Mix and Match subject to the following:

- The subsequent Mix and Match (i.e., upon approval of the first report) must occur within two years of the date that the employee reported to the lower-rated position.

- Displacement of another employee at a level higher than their current level is not permitted.

12) Promotion-in-Place Programs (PIPs)

a) Employees in a PIP will be retained in their PIP (should it continue to exist) based on seniority, subject to item (d) below.

b) Employees in non-PIP positions or in other PIPs will be considered for PIP positions subject to the following:

i) for lateral or lower-rated levels of the PIP only;

ii) must be minimally qualified at the entry level of the PIP;

iii) able to achieve the terminal level of the PIP;

iv) placement is based on seniority.

c) Employees in a PIP position will be considered for non-PIP positions for which they are qualified, subject to the following:

i) considered for lateral or lower-rated positions;

ii) placement is based on seniority.

d) Hydro One may determine a minimum number of employees qualified at the terminal level of the PIP at an appropriate work unit level (e.g., Division, Department, Section).

13) Any employee may be matched to a vacancy for which he/she is qualified outside of the Unit of Application based on other Mix and Match rules provided that no displacement of another employee results.

64.10.2.2 Available Options if Employee Refuses a Job Offer

An employee who rejects an offer that is upheld by the Joint Reasonable Offer Team (refer to 64.11.3) as reasonable must, within 48 hours of being advised of the decision, choose between options (a) or (b) as follows:

a) Accept job offer; or

b) Confirm refusal and terminate with 75% of lump sum payments pursuant to Clause 64.13.2.2.

Exception: Employees who have been demoted as a result of the direct application of Article 64 and who, in a subsequent mix and match, face a demotion again due to the direct application of Article 64 will be allowed to choose between accepting the demotion or being declared surplus with full entitlements. They will not be required to submit to the JROT process.

64.10.2.3 Refusal of an Incumbent Position

Where an employee has been declared to be an incumbent to a position by the JRPT, he/she will not be entitled to file a challenge

with the JROT in relation to the incumbent position. If the employee does not accept a match to his/her incumbent position, he/she may be deemed by Management to have voluntarily terminated his/her employment with Hydro One.

64.10.3 Sequence of Events

The following process shall apply in situations where an adverse impact arises:

(i) Where the number of employees exceeds Hydro One's needs, Section 64.8 will apply.

(ii) The filling of Society-represented vacancies pursuant to Subsection 65.6 shall be frozen across Hydro One during the mix and match period. These vacancies will be unfrozen when the mix and match is concluded and surplus employees (if any) are identified.

(iii) The mix and match process will take no longer than 4 weeks. Prior to the beginning of the 4 week period, Management will provide the JRPT with the following information:

- Details on the new organizational structure at a detail level that will indicate the classification, location, number of positions in the new organization;
- A seniority list by pay grade and occupation code;
- Identification in writing of the qualifications and selection criteria for positions without incumbents, for the affected work group.

(iv) A standing arbitrator will be appointed at the beginning of each mix and match.

(v) The mix and match process will involve the following steps with viability check after each step:

1. Incumbent matching
2. Matching to lateral vacancies in the same location (Volunteer/Force)
3. Volunteering for location change and/or a demotion.

(Note: Steps 1, 2 and 3 require organizational charts only within the work group. Steps 1-3 only apply to the new/changed organization).

4. Matching to lateral vacancies in another location in Hydro One (Volunteer/Force).
5. Displacement on the basis of seniority and qualifications to the most junior lateral first in the Unit of Application
6. Matching to demotion vacancies descending within salary grades in Hydro One (Volunteer/Force)
7. Displacement on the basis of seniority and qualifications to the most junior demotion (descending within salary grades) in the Unit of Application.

(Note: Steps 4, 5, 6 & 7 do not require organizational charts).

8. If unable to be placed through any of above steps, the employee will be declared surplus.
9. Subject to subsections 64.11.3 and 64.10.2, employees who refuse a placement in the above process will be considered to have resigned from their employment.

64.10.4 Identification of Surplus Employees

The Joint Redeployment and Planning Team will compare the seniority of employees performing work that requires substantially the same qualifications and experience. In addition the team will compare the qualifications and experience of displaced employees with the qualifications and experience required by lateral or lower rated positions in the Unit of Application and retain the most senior at that level in descending order. Through this process the Joint Redeployment and Planning Team shall decide by consensus which employees within the Unit of Application have greater seniority and shall be retained to fill the ongoing positions and which employees have least seniority and shall be declared surplus subject to (a) and (b) below.

Seniority rights apply to lateral and lower rated positions but are not applicable to higher rated positions except for prospective reclassifications pursuant to Clause 66.3.1.c. The exception to this can occur where there are essentially no lateral or demotional positions with respect to which an employee can exercise his/her Employment Continuity rights and where the JRPT believes there are reasonable opportunities for promotion. The JRPT will identify the individual employee(s) or categories of employees facing these circumstances and the positions or categories of positions that represent promotional opportunities.

Employees who are not supervisors shall not exercise their seniority and displace supervisory employees with respect to supervisory positions unless they have supervisory qualifications. Employees who are not First Line Managers (FLM) shall not exercise their seniority and displace FLM employees with respect to FLM positions unless they have FLM qualifications.

Employees ***in positions covered by Article 25 ("trainees")*** will not normally have their seniority considered with employees from Salary Schedules 01 or 02. The Joint Redeployment and Planning Team may decide on exceptions when ***trainees*** have achieved at least Step ***2*** and have greater seniority than entry level employees on Salary Schedules 01 or 02 or where ***Article 25*** is being used as a salary bridge for employees selected to Salary Schedules 01 or 02 positions.

For the purposes of Subsection 65.6.3 where the Joint Redeployment and Planning Team has agreed to make exceptions based on the above circumstances, such ***trainees*** will have priority consideration in the same manner as other Salary Schedule 01 or 02 surplus employees. Where the Joint Redeployment and Planning Team does not accept that the circumstances warrant exceptions, surplus ***trainees*** will have priority consideration for MP2 and equivalent or lower rated vacancies following consideration of the surplus regular employees from within the bargaining unit and before the applications of all other employees.

Employees from outside of the bargaining unit shall not displace Society-represented employees.

In the event that the team is unable to reach consensus on the identification of surplus employees, Hydro One will determine who is declared surplus in accordance with the provisions of Subsection 64.10.4.

a) Viability of the Work Unit

If the ability of the organizational unit to adequately perform its functions is placed in jeopardy by the application of seniority, the Joint Redeployment and Planning Team may decide to protect sufficient lesser service employees to restore the viability of the organizational unit. If the team is unable to reach consensus, then Senior Management (e.g., Directors, General Managers) will decide. In situations where junior staff are protected by the implementation of this Subsection, and where the Unit of Application is smaller than a Business Unit, greater service employees who cannot be placed as a result of such protection shall have the right to have their seniority applied across the Business Unit.

b) Employment Equity

If employment equity programs will be seriously set back, the Joint Redeployment and Planning Team may by consensus agree to protect sufficient lesser service employees in order to prevent such a set back from happening and extend the same provisions as set out in (a) above. This provision is not intended to further or enhance employment equity initiatives. Where the team has not reached consensus on the need to protect lesser service employees because of employment equity concerns, then the normal rules for identifying surplus employees on the basis of seniority will apply as outlined above in Subsection 64.10.4.

64.10.5 Declared Surplus

Employees declared surplus will receive written notice. The written notice shall contain:

- The cause of the surplus.
- A reference to this Article.
- The expected expiration date of the “vacancy transition phase”.
- The right to Hydro One wide priority consideration for vacancies in accordance with Subsection 65.6.3 if the employee elects to remain for the “vacancy transition phase” or elects to receive his/her severance payment in weekly instalments to a maximum of one year.
- An election form that the employee is required to fill out and return within three (3) working days indicating whether or not he/she wishes to remain for the “vacancy transition phase” or to terminate immediately.

- The total monetary value of the payment in lieu of notice and severance entitlements.

- The anticipated date the employee will vacate his/her position.

64.10.5.1 Voluntary Surplus

An employee from the affected unit of application who would not otherwise be surplus may volunteer to be declared surplus, subject to the following:

a) The withdrawal of surplus status will be offered in seniority order to those surplus employees who are qualified to perform the duties and responsibilities of the position of the employee who is volunteering.

b) The surplus employee will not be considered for a promotion, but may be considered for a promotion-in-place position.

c) This must result in the withdrawal of surplus status from the surplus employee.

d) The employee who is volunteering to be surplus will assume the surplus entitlements of the surplus employee who has his/her surplus status removed. A JRPT may recommend that different entitlements be made available to employees volunteering to be surplus.

e) The exchange of employees arising out of the application of these provisions is subject to the approval of Hydro One. The decision to approve (or disapprove) will be on the basis of further disruption to the work of the affected work unit.

64.10.5.2 Vacancy Transition Phase (VTP)

Employees who are declared surplus have the option of remaining on payroll for the "vacancy transition phase", which will last for a maximum of six (6) weeks. During the VTP, vacancies frozen at the beginning of the mix and match will be unfrozen and management must finalize the selections for these vacancies by the end of this period. The posting period will be one week. Surplus employees who remain during the VTP will have priority consideration for vacancies in accordance with Subsection 65.6.3. Subject to Section 64.14, surplus employees who remain during the VTP who have not accepted an offer of a position by the end of the VTP will be terminated. Surplus employees terminated at the end of the VTP will have their entitlements calculated as of the date of surplus declaration (e.g., the period on payroll during the VTP will be deducted from the severance and in lieu of notice payment on termination).

Employees who elect not to remain on payroll during the VTP will be terminated immediately and receive payment in accordance with Section 64.13.

64.11 Job Offers

64.11.1 Acceptance/Rejection of Job Offers

A surplus employee will have up to 7 calendar days to accept or refuse an offer of a position.

64.11.2 Assessment of Suitability

If there is more than one applicant for a vacancy within The Society's jurisdiction, the applicants will be considered in the priority set out in Subsection 65.6.3.

Within each category the most suitable candidate will be selected.

64.11.3 Reasonable Offer Challenge Process

A Joint Reasonable Offer Team (JROT) will be established for each Unit of Application established under this Article.

This team will resolve employees' appeals arising from offers made during the mix and match process.

The team will meet and make a decision within three (3) working days of receipt of the appeal. The decision will become part of the JRPT final report recommendation.

It will take into consideration items such as job level, geographical location, responsibilities, status, health, family, legal precedents, community standards and past practices.

The team will be made up of two employees representing Hydro One and two employees representing The Society. The members of the team must be different than those on the Joint Redeployment and Planning Team. The team's membership composition should avoid conflict of interest.

The surplus employee is responsible for presenting his/her own case.

64.12 Compensation

64.12.1 Salary Maintenance

64.12.1.1. The surplus employee's base rate of pay will be maintained, including economic increases and special allowances in the case of TMS staff (refer to Article 30), until placement or termination.

64.12.1.2 If an employee accepts a position at the same salary level, it will be at the same salary and performance level subject to later

performance reviews. Entitlement to special allowances for TMS staff will reflect the conditions of the new position.

64.12.1.3 If an employee accepts placement in a lower rated position his/her current base salary dollars will be frozen until the employee's current pay entitlement as determined from the salary grade and performance standing exceeds the frozen level. This salary treatment must be conveyed in writing when the offer is made.

Exception:

An employee who is within three years of eligibility for an undiscounted pension will be entitled to any negotiated economic increases for the period of time prior to qualifying for the undiscounted pension. In the event that the employee does not retire upon qualifying for an undiscounted pension, his/her base salary dollars will be frozen at that time. (This would include any economic increases occurring during the period of time prior to qualifying for an undiscounted pension.) At this point, the normal salary maintenance provisions will apply.

64.12.1.4 Premiums will be calculated on the basis of the performance standing assessed for the lateral or lower rated job.

64.12.2 Reduction in Hours of Work

(Applicable to Employees paid from Salary Schedules with base 35-hour workweek)

64.12.2.1 Principles

- Pay should reflect hours worked.
- Pay should reflect the job performed.

64.12.2.2 Where employees move to positions where the normal weekly hours are less than in their former positions, the following will apply:

a) The Society and Hydro One will attempt to reach a local agreement on a transition which would allow the affected employees to work additional hours above the 35 hour base for an extended period of time with staged reductions.

64.12.2.3 Failing agreement in accordance with Clause 64.12.2.2, the following treatment will apply:

The employee's working hours and salary will be frozen for a six-month period at which point they will be reduced on a pro-rated basis by 2.5 hours. They will be further reduced by increments of 2.5 hours every six months thereafter until such time as the hours of work are the same as that of the new position.

64.13 Compensation on Surplus Termination

64.13.1 Payment in Lieu of Notice Entitlement Calculations

All full-time and reduced-hours employees who are declared surplus will have a payment in lieu of notice entitlement calculated as follows:

- no less than a 24 week basic payment in lieu of notice entitlement;

  plus

- service-based payment in lieu of notice entitlement equal to the sum of:

  - ♦ two (2) weeks per year of service for the first five years of service, and
  - ♦ one (1) week per year of service for service greater than five years, and
  - ♦ employees with relevant previous experience will receive additional service-based job search credits based upon their highest salary grade within one year of hiring in accordance with the following:

Salary Grade Hired Into	Credit
MP1/FMP11/TMS1-2/	2 weeks
MP2/FMP12/ /TMS3/	4 weeks
MP3/FMP13/ TMS4/	6 weeks
MP4/FMP14/ TMS5/	8 weeks
MP5/FMP15/OSS12/	10 weeks
MP6/FMP16/	12 weeks

- For reduced hours employees, the service-based payment in lieu of notice entitlement will be calculated as if all service had been worked full-time.

  The total payment in lieu of notice entitlement will not exceed 60 weeks.

64.13.2 Severance, Lump-Sum Payments and Voluntary: Resignation

64.13.2.1 Severance

Severance pay for the purpose of this Article will be calculated, for employees with less than 20 years' service, at a rate of 2 weeks for each year of service at the date of surplus declaration. Employees with a minimum of 20 years of service shall receive severance pay of 3 weeks per year of service at the date of surplus declaration to a maximum of 78 weeks. It will be calculated at the weekly rate for base hours of work for the full-time position (refer to Section 71.2) to the nearest whole month (30 days). Credit will be given on a prorated basis for any service which exceeds a whole year to the nearest whole month (30 days). The relativity allowances paid to TMS staff will be treated as base salary in the calculation of severance for TMS staff.

Severance pay is paid only when employment has terminated.

Persons receiving severance pay will not be considered employees for the purpose of any benefit, service accumulation nor for any other purpose from the day of termination except for recall as per Section 64.15.

The maximum amount of severance is 78 weeks.

64.13.2.2 Lump Sum Payments and Voluntary Resignation

On termination**,** surplus employees will be entitled to their payment in lieu of notice and severance entitlements in the form of a lump sum payment in accordance with the following:

One hundred percent (100%) of their basic payment in lieu of notice entitlement, plus 100% of their service based payment in lieu of notice entitlement plus 100% of their severance pay entitlement, less any period on payroll during the vacancy transition phase if applicable.

64.13.2.3 Previous Severance and Lump Sum Payment

Surplus employees who have received a payment under a predecessor Article 64 or Agreement S3 will have their severance calculated on the basis of continuous service since the last time severance was paid.

64.13.2.4 Transitional Assistance

On termination, surplus employees shall also be eligible for the following:

(i) Coverage under Hydro One's Health and Dental Plan for a period of nine (9) months from the date of termination of employment or until the commencement of alternate employment whichever occurs first;

(ii) Reimbursement for tuition fees and other associated expenses up to a maximum of $4,000.00 upon production of receipts from an approved educational program within 12 months of his/her termination;

(iii) Reimbursement of outplacement services up to a maximum value of two weeks salary (e.g. Outplacement counselling, legal or financial counselling, external job search expenses), upon production of receipts.

(iv) Recall and vacancy selection priority rights pursuant to 64.15.

64.13.3 Legal Notice of Termination of Employment

It is agreed that compensation for basic payment in lieu of notice and the service-based payment in lieu of notice is sufficient and full notice as per the requirements of the relevant legislation. This Article meets the requirements of the *Canada Labour Code* for federally regulated employees.

64.14 Termination of Employment

If a surplus employee who elects to remain on payroll during the Vacancy Transition Phase is not placed by the end of this Phase he/she will be terminated with severance pay entitlement as per Sub-clause 64.12.2.2.1 "Severance".

Surplus employees on rotation may continue employment with Hydro One beyond the Vacancy Transition Phase at the discretion of the receiving unit (i.e., the unit with the rotational assignment). Normally the extension will be for the duration of the rotational assignment, but a cancellation provision (minimum of 30 calendar days) may be included as one of the terms of the rotational assignment at the discretion of the receiving unit. For the period of employment following the expiration of the Vacancy Transition Phase, employees will be considered per Clause 65.6.3 (f) for selections to corporate vacancies. The period of employment extension shall not be used for the calculation of any entitlement (e.g., severance and payment in lieu of notice) under this Article. In all other respects, the affected employees will be treated as regular employees under the Collective Agreement.

Throughout this Article, wherever surplus employees eligible to retire terminate their employment voluntarily or involuntarily, such employees will be entitled to full retirement benefits in addition to full entitlements under this Article.

64.15 Recall Rights

Employees whose employment is about to terminate are entitled to the following:

a) A terminating surplus employee will be eligible for either:

- a weekly paid severance payment with entitlements to recall within Hydro One;

or

- a lump sum severance payment with no right to recall.

b) Terminated surplus employees with more than 3 years service will be eligible for recall rights for 12 months from the date of their termination. Employees on Schedule 04 or who have less than 3 years service will be eligible for recall rights for 24 months from the date of their termination.

c) Former surplus employees with recall rights will be considered for vacancies in the bargaining unit as per Subsection 65.6.3, including their right to grieve non-selection (refer to Subsection 65.6.3).

d) Weekly severance payments will cease in the event a terminated former surplus employee is rehired.

e) Severance pay received prior to recall will be subtracted from any future severance pay entitlements under this Article.

f) Persons on recall are not employees and shall not be entitled to any benefits provided to employees except recall rights as noted above.

64.16 Relocation and Housing Assistance

64.16.1 Hydro One will restructure the cost of relocation so it mitigates the disincentive in the redeployment of surplus staff.

64.16.2 A surplus employee in a community where Hydro One's presence influences the housing market may avail himself/herself of the House Evaluation and Guarantee Plan in accordance with the Hydro One policy.

65 VACANCIES (RELIEF, ROTATIONS AND SELECTIONS)

65.1 Intent

To provide open, fair access to career opportunities and enable Hydro One to optimize staffing requirements over time.

65.2 Definitions

"Relief/Rotations" assignments are short assignments where an individual is assigned duties outside their normal job duties.

"Relief" assignments will mean short term assignments (normally up to 3 months) where an individual is appointed to act temporarily in an ongoing position or which is expected to become an ongoing position. In some cases, the individual may not be required to perform all of the duties and responsibilities of the position.

"Rotations" will mean assignments normally greater than 3 months but not exceeding 2 years in duration in positions which are not expected to be ongoing.

65.3 Advance Planning

Prior to filling the work assignment, Management will meet with the local Society representative to discuss the nature of the requirement (e.g., relief, rotation) its expected duration, the selection process and whether there is an expectation that the work assignment will result in an on-going position.

65.4 Relief

65.4.1 Relief is used to cover (a) short-term absences for vacation, sickness, relief absences, etc., (b) short-term bridging periods for selection or rotation, and (c) short-term emergency situations.

65.4.2 The process for selecting the employee to fill the relief assignment should be easy and quick and provide a fair opportunity to employees in the work unit to perform relief.

65.4.3 If there is mutual agreement between the Society Unit Director and Management prior to the beginning of the relief assignment, the relief assignment and the incumbent(s) can run for a period of up to one year. In the absence of mutual agreement, the relief assignment is limited to 90 days.

65.4.4 Relief assignments will not be used continuously to avoid advertising either a rotation or an ongoing position.

65.4.5 Pay treatment while on relief will be in accordance with Article 66.

65.5 Rotations Within the Bargaining Unit

(This Article does not apply to rotations outside the unit.)

Rotations are used to accomplish work for situations that occur between short-term relief and on-going positions. At the completion of the rotation, the employee will return to his/her original position or a comparable position normally within the sending unit, except in the circumstances where the employee is surplus (see Article 64).

65.5.1 Principles

Job rotations serve many purposes such as:

a) to provide development opportunities to employees consistent with their career objectives;

b) to allow Management to meet temporary work programs and work load requirements;

c) to manage work performance or to test skills and capabilities where it is believed that an employee's skills and capabilities may be better utilized in another position;

d) to broaden the experience of employees so that they may better perform their regular jobs;

e) to provide employees with the opportunity to develop new skills for career advancement or to enhance career options in the case of anticipated redeployment or technological change which could result in skill redundancy or obsolescence;

f) to meet Hydro One’s employment equity objectives;

g) to provide Management with flexibility in resourcing regular positions as a result of employees being provided rotational opportunities and temporary relief assignments.

65.5.2 Rotations which are expected to last six (6) months or longer in duration will be posted unless there is agreement with the Society. The scope of the posting will be determined by the receiving unit and may be within the Department, Division/Business Unit or Hydro One-wide. Hydro One will post rotational opportunities on the Hydro One website.

Unless there is mutual agreement, the rotation will not continue beyond two years except where the position is formally identified as an ongoing training position.

A job rotation posting should include basic information such as the position name and location, salary level, a description of required duties, starting date and proposed duration of the rotation.

65.5.3 The optimal selection process is one in which the employee's interest in the job rotation opportunity, the sending unit's ability to release the employee and the receiving unit's interest in the employee coincide. Rotations will be voluntary.

The selection process should include the use of formal selection criteria and interviews will be the responsibility of the receiving unit.

65.5.4 Employees selected for rotation will be provided with a letter in advance of the rotation stating the nature, terms and conditions of the assignment, including rotation duration and details of the performance appraisal process. These terms and conditions should be mutually acceptable.

65.5.5 An employee, other than those who are surplus, who accepts a job rotation will be given a guarantee by the sending unit that he/she can return to his/her original position, if available, or to a comparable position normally with the sending unit.

65.5.6 Terms and working conditions while on a job rotation will comply with all applicable Articles in the Collective Agreement concerning pay treatment, overtime, performance pay plan and appraisal process, moving expenses, travel expenses and related Hydro One policies.

65.5.7 Employees should not be restricted from applying to advertised vacancies or from being subsequently released from the rotational assignment if selected where the employee is surplus or the vacancy represents a promotion.

65.5.8 Performance feedback is an essential ingredient in any rotational assignment and should be provided during and upon completion of the rotation. A rotation should not normally have a negative effect on an employee's performance pay standing.

65.6 Selections for Ongoing Positions (i.e., Assignments Other Than Relief or Rotations)

65.6.1 All vacancies for ongoing positions (i.e., assignments which do not fall into the category of relief or rotations***)*** shall be advertised Hydro One**-**wide unless there is agreement with the Society Unit Director or the following conditions apply:

a) during implementation of Article 64 (Redeployment**,** Surplus Staff Procedure and Change of Employer);

b) laterals or demotions in the case of sickness; employees with disabilities or special needs; employees returning from rotations, LTD, leaves of absence, foreign assignments, secondments/assignments outside Hydro One;

c) performance management that takes place following consultation with the Society;

d) ongoing exceptions in specified organizational units where there has been joint agreement by the parties***.***

e) “promotions” within a promotion-in-place plan or a proposal which has the joint agreement of the Issues Team in accordance with Subsection 32.3.1. Vacancies for positions in a promotion-in-place plan will be advertised in a manner which informs employees that the position is included in a promotion-in-place plan and that where the best candidate does not satisfy the qualifications or experience required for the end position the employee may be offered the position at a lower rate and be promoted in place.

Employees in categories (a) to (e) in subsection 65.6.3 will be considered at all levels of the PIP prior to those employees in categories (f) to (h) and subject to unit viability. Unit viability which would alter this consideration will be discussed in advance of advertising the PIP.

Exceptions to provide for the advertising of the position at a lower rate than the end position will be permitted by joint agreement between the Society Unit Director and the Business Unit Leader based upon a balanced consideration of:

- future work planning needs
- providing developmental opportunities for lower-rated staff outside of the promotion-in-place plan
- current work requirements
- unit viability and the need to have sufficient number of staff in the end positions.

In such cases, the vacancy notice will state that the position is part of a PIP Plan and surplus employees will be considered for placement at a lateral level.

f) a regular position currently held by an employee where a job review has resulted in a change in salary schedule and/or salary grade.

g) to fill vacancies with the same occupation code within six (6) months of the ongoing posting, in which case Management may select from the previous list of candidates, after checking that surplus employees have not become available for consideration since the vacancy was last advertised;

h) to meet legislative requirements;

i) pursuant to Section 25***.5.***

65.6.2 All applications which represent a promotion must be processed.

When an application to an advertised vacancy represents a lateral or demotion to a non-surplus employee, the following will apply:

a) Applications from employees with less than one year's service in their current position will be processed and considered if the employee's supervisor agrees.

b) Applications from employees with one to three years' service in their current position will be processed and considered if, in the opinion of the current supervisor and the hiring supervisor, the move on balance would be in the best interest of Hydro One and the employee.

c) Applications from employees with over three years' service in their current position will normally be processed and considered unless the move would seriously jeopardize the viability of the work unit.

65.6.3 Selection Priority for Vacancies

If there is more than one applicant for a vacancy within the Society's jurisdiction, the applicants will be considered in the priority set out below:

a) Surplus Society-represented applicants who have elected to remain on payroll for the “vacancy transition phase” for whom the vacancy represents a lateral or demotion including surplus trainees applying for MP2 or equivalent or lower rated positions on Schedules 01 and 02 who have progressed to at least Step 5 and who were mixed and matched with Schedule 01 and 02 employees;

b) Surplus employees paid from Salary Schedules 04 who were not mixed and matched with Schedule 01 and 02 employees and who have greater seniority than Surplus Applicants on Salary Schedules 01 and 02 and have elected to remain on payroll for the “vacancy transition phase” will have priority consideration for MP2 and equivalent or lower rated vacancies before the applications from all other individuals other than those in (a) above.

c) Surplus Management Compensation Plan (MCP) applicants from positions that are excluded from the Society for whom the vacancy represents a lateral or demotion who remain on payroll during the six week period following their surplus declaration.

d) Surplus terminated persons with recall rights pursuant to Section 64.15.

e) Rehabilitative employees pursuant to Section 47.5.

f) All regular Society-represented and regular MCP applicants to the vacancy. This includes applicants from another Society bargaining unit with selection priority pursuant to the transition provisions in Article 9.

g) Temporary employees and employees temporarily included in the Society’s bargaining unit paying Society dues (See Section 5.2).

h) Members of other bargaining units who are active employees of Hydro One.

i) External to Hydro One.

Assessment of the suitability of a surplus employee for a lateral or lower level placement opportunity will include education, experience, personal contribution factors and potential for training to perform the job requirements within a reasonable period of time (e.g. up to six (6) months). A surplus employee who is placed and who requires additional training to perform the job requirements will be provided with assistance to obtain the necessary training and development to perform the new job requirements. Hydro One will restructure the cost of retraining so it mitigates the disincentive in the redeployment of surplus staff.

A determination that none of the applicants in category (a) is qualified or qualifiable within a reasonable period of time is required before considering the applicants from the next category. The same is true with respect to categories (b), (c), (d), (e), (f) and (g). "Qualifiable" means that the employee can perform the job requirements normally within 6 (six) months.

See subsection 65.6.1 for priority consideration of applicants to promotion in place plan vacancies.

Hydro One agrees to grant priority to Society represented employees who are surplus and to those who fall within subsection 65.6.3(e) who apply for positions excluded from all union jurisdictions and for whom the vacancy represents a lateral or demotion, after the consideration of surplus applicants who are excluded from all unions for whom the vacancy represents a lateral or demotion and prior to consideration of all other applicants.

Regular MCP applicants are granted the same priority consideration as regular Society-represented applicants at level (f) on condition that Society-represented applicants are granted the same priority consideration as MCP applicants for MCP vacancies except as otherwise provided for in this sub-section.

65.6.4 In determining who is the best qualified candidate for positions, in each category of subsection 65.6.3, the primary basis for the selection of employees is their assessed capability to perform the necessary work. The selection criteria would normally include but not be limited to the following:

a) requirements including skill, knowledge, education, experience, transferable/generic skills such as analytical skills, communications skills, project management skills, consulting skills, self-management skills, accountability, responsibility, etc.;

b) the candidate's past track record and what she/he brings to the position;

c) the candidate's potential to develop competence for more senior positions;

d) the need to meet legislative requirements;

e) the need to balance the overall requirements of the work unit.

65.6.5 Employee selection measures which are used as aids in selection decisions shall be job related and be used in a manner that is fair and equitable to the individuals being assessed. Individuals will be entitled to prior knowledge of the selection criteria and be entitled to information with respect to their performance in the selection process upon request.

65.6.6 Some flexibility should be exercised in accepting late applications to advertised vacancies after the closing date in order to permit employees a fair opportunity to continue employment yet still allowing the Business Unit to resource expeditiously.

Where the closing date is FIRM, it must be stated clearly in the vacancy posting that late applications will not be considered.

a) Surplus and non surplus employees are normally expected to have made application to a vacancy by the closing date.

b) It is recognized that in some instances, there will be applications filed after the official closing date. In these cases, unless the closing date is FIRM, late applications must be filed with the advertising location NOT later than the date that the "short list" of applicants is finalized for formal consideration.

- The term "Short List" refers to the first list of applicants who Management plans to interview for a vacancy.

c) Employees who have applied for vacancies and are later declared surplus have until the "short list" date to notify the advertising location of the change in their status.

65.6.7 Applicants to advertised vacancies are to be advised of the status of the vacancy (and of their applications) within a reasonable period of time for each successive step they qualify for.

65.6.8 Hydro One shall provide copies of all offer letters, including for rotational assignments and new hires***,*** to the Society Unit Director***.***

65.6.9 When outstanding vacancies remain unfilled for longer than six months, employees in the work unit concerned should be advised of the reason for not filling such vacancies.

65.6.10 All positions on salary schedules 01, 02, ***and*** 03 which are excluded under the Recognition Clause and first-level ESR vacancies including rotational opportunities expected to last longer than six months will be posted on appropriate bulletin boards (and through electronic means where possible).

65.6.11 Release of Employees Selected to a Vacancy

Intent:

a) Hydro One will strive to facilitate the expeditious release of employees who are selected to a vacancy**.**

Normally, employees should be released within 90 days of the vacancy selection. In the event that a release date greater than 90 days appears likely, Management will discuss the reasons for the delay and a release date with the Society**.**

66 SALARY TREATMENT FOR PROMOTIONS, TEMPORARY ASSIGNMENTS, LATERAL TRANSFERS AND DEMOTIONS

66.1 Definitions

"Promotion": This occurs when an employee is appointed to a position in which the demands and responsibilities are greater than in the employee's current job and the position is a minimum of one salary grade higher than the employee's current job if rated on the same salary schedule or the equivalent of one salary grade higher if rated on a different salary schedule.

"Higher-Rated" Job:

A job paid from:

a) the same salary schedule and is a minimum of one salary grade higher than the employee's current job; or

b) a different salary schedule in which the salary level is greater than in the employee's current job, measured by ***Step 9*** salary grade ***rates.***

"Lateral Transfer":

This occurs when an employee is appointed to a job paid from:

a) the same salary schedule and is the same salary grade as the employee's current job; or

b) a different salary schedule in which the salary level is equivalent to the employee's current job, measured by ***Step 9*** salary grade ***rates.***

"Demotion":

This occurs when an employee is appointed to a position in which the demands and responsibilities are less than in the employee's current job and the job is a minimum of one salary grade lower than the employee's current job if rated on the same salary schedule or the equivalent of one salary grade lower if rated on a different salary schedule.

66.2 Promotion

66.2.1 It is normally expected that an employee will receive a salary increase upon promotion to compensate for the greater demands and responsibilities of the new, or revised, job.

66.2.2 A promoted employee will be placed at the ***step*** which reflects a reasonable expectation of his/her performance in the new or revised job.

66.2.3 ***It is normally expected that employees who are "green-circled" as a result of the implementation of the new salary progression plan and whose "green-circled" rate is above Step 9 of the rate of the new job will receive a salary increase, to a maximum of 3%, upon promotion.***

66.3 Reclassification as a Result of a Job Re-evaluation

66.3.1 Reclassification may occur under several circumstances**:**

a) when the salary grade for a job increases with no change in the employee's actual job duties/responsibilities;

b) when the employee has been and will continue to perform additional job duties/responsibilities;

c) when additional job duties/responsibilities are to be added to the job.

Reclassification as a result of (a) or (b) above will result in the employee being placed in the same ***step*** in the higher salary grade.

Reclassification as a result of (c) above will be considered as a promotion. However, at the next performance appraisal the employee will be eligible to be placed in the same ***step*** as before the reclassification.

In circumstances (a), (b) or (c), it is normally expected that employees who are "green-circled" as a result of the implementation of the new salary progression plan and whose "green-circled" rate is above Step 9 of the rate of the reclassified job will receive a salary increase, to a maximum of 3%, upon reclassification.

66.3.2 Short-term increases in the employee's actual job duties/responsibilities do not require reclassification but may be subject to the relief provisions of this collective agreement.

66.3.3 Retroactive payments, if any, that result from reclassification either because of a Management or employee-initiated job review will be limited to a maximum of one year prior to the date of the job review request. The employee must have performed the relevant duties and responsibilities which resulted in the reclassification during this period in order to qualify for retroactivity.

66.3.4 Retroactivity which results from a reclassification decision will be paid within 60 calendar days of the decisions (i.e., if no dispute, date of Management decision to implement; if dispute goes to grievance, date of Step 2 decision or date of arbitration award.

66.4 Relief Pay

An employee will receive a salary increase after five (5) consecutive days when temporarily relieving in a higher-rated position or after 10 cumulative working days. Where such increases occur, they will be paid retroactive to the first day of relief. The amount of increase should reflect the increase in job demands and responsibilities. ***Employees who are "green-circled" as a result of the implementation of the new salary progression plan and whose "green-circled" rate is above Step 9 of the rate of the relief position will receive a salary increase, upon meeting the conditions outlined above, to a maximum of 3%.***

66.5 Lateral Transfer

Normally, an employee who is appointed to a lateral position should receive no increase in current pay.

66.6 Demotions

For voluntary demotions, the employee will take the rate of the lower-rated position except as follows:

- ***Where employee involuntarily demoted pursuant to Article 64, "red-circling" (i.e. the freezing of the employee's base salary dollars) will continue until employee's new pay rate exceeds the frozen level, regardless of the number of appointments.***

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67 PURCHASED SERVICES

(Suspended for term of the collective agreement except for the last bullet).

67.1 Approvals

67.4.1 Blanket annual PSA approval will be given for each organization headed by a direct report to the President at the beginning of each calendar year subject to the following conditions:

- Hydro One commits to use regular staff for most core work;
- External resources will be primarily used for work such as supplementing peaks, responding to new business opportunities, low value work, non-recurring work etc.;
- Hydro One commits to enhancing and maintaining skill level of staff;
- As soon as possible and in any event no later than early in the calendar year each direct report to the President will review and discuss the staffing strategy with the Society Hydro One Local Vice-President for the purpose of trying to reach a common understanding with respect to the strategy. If a common understanding cannot be reached, management will make the final decision;
- Each direct report to the President will provide to the Society at the end of the calendar year a list of contracts let during the year including total contract dollars;
- No employee will be laid off as a direct result of contracting out.

68 HOURS OF WORK

68.1 ***Salary schedule 01 applies to all employees with a 35 hour base work week and to all employees in jobs rated under the Plan A Job Evaluation Manual, with regularly scheduled hours between 35 and 40 hours per week paid on a prorated basis.***

68.2 ***Salary schedule 02 applies to all employees with a 37.5 base work week, with regularly scheduled hours between 37.5 and 40 hours per week paid on a prorated basis.***

68.3 ***Salary schedule 03 applies to all employees with a 40 hour base work week in jobs rated under the TMS Job Evaluation Manual or to which LOU #5 applies.***

68.4 Reduction of Hours of Work

Where Management reduces the standard hours of work for a position, the following will apply:

a) The Society and Hydro One will attempt to reach a local agreement in advance of the change on a transition which would allow the affected employees to work additional hours above the 35 hour base for an extended period of time with staged reductions.

b) Failing agreement in accordance with (a), the following treatment will apply:

i) Where an employee is within 3 years of eligibility for an undiscounted pension, the employee's normal hours of work will not be reduced for 3 years, or until such time the employee is eligible for an undiscounted pension if earlier, and the employee will continue to receive economic pay adjustments. If the employee does not retire upon qualifying for an undiscounted pension, then their hours of work and base rate will be immediately reduced to the hours and rate of the position.

ii) For other employees than those in category (i), the employee's working hours and salary will be frozen for a six month period at which point they will be reduced on a pro-rated basis by 2.5 hours. They will be further reduced by increments of 2.5 hours every six months thereafter until such time as the hours of work are the same as that of the new position.

68.5 Hydro One will comply with legislative requirements regarding hours of work.

69 REDUCED BASE HOURS (40 HOUR WORKERS)

The base hours of work for employees whose regularly scheduled hours of work are 40 hours is 39 hours per week.

These employees will continue to work 40 hours per week, banking one hour per week at straight time.

a) The normal scheduled and paid hours of work will remain at 40 per week.

b) Overtime rates will be paid for all hours in excess of normal scheduled hours.

c) Banked time may be taken on such days as the employee and his/her supervisor mutually agree upon following reasonable advance notice on the part of the employee.

d) Banked time may be taken off in a minimum of half day (i.e. four hour) increments.

e) Banked time accumulated in a calendar year must be taken by April 30th of the following year.

f) Where an employee is unable to reach mutual agreement with his/her supervisor to take his/her banked time entitlement (except when exhausting sick leave prior to LTD), unused banked time entitlement will be assigned on the last working day(s) prior to April 30th.

g) Where an employee falls sick on his/her scheduled banked time off, that day will not be charged against his/her sick leave credits, but shall be treated as banked time off for pay purposes.

h) Banked time will not accumulate for any period of unpaid leave exceeding 40 consecutive scheduled hours. Scheduled days off will not be considered as breaking the consecutive nature of scheduled hours. Banked time will accumulate during a paid leave of absence and parental leave.

i) When an employee terminates or when an employee is appointed to a job where the normal hours of work are less than 40 hours per week, unused banked time will be paid off at straight time rates.

70 ALTERNATE HOURS OF WORK ARRANGEMENTS

70.1 Principles

70.1.1 That any alternative arrangements will positively affect our customers. That cost, quality, service and value are key to our success.

70.1.2 That work is best achieved when individuals manage their own time and accept the accountability and the responsibility for the results.

70.1.3 That processes for negotiating and establishing hours of work arrangements will be uniform across Hydro One, and accessible to all. The processes will be designed to ensure equitable treatment. However the results of applying the processes may differ from location to location and unit to unit.

70.1.4 That decisions should be made at the most appropriate level that is closest to the work being done.

70.1.5 That individual concerns will be factored into group proposals and wherever possible, participation in changed hours of work will be on a voluntary basis.

70.2 Application

The procedure described in this Article applies to all forms of alternate hours of work arrangements.

70.3 Definitions

"STANDARD HOURS OF WORK" are to be worked to provide coverage for the business hours. For people assigned to day work, ***a start time window is established to allow a flexible start-time between 7:00 a.m. and 9:00 a.m. and standard hours will not*** end after 6:00 pm. They are:

- for 35 hour/week staff - Monday through Friday, 7 hours per day and
- for 37.5 hour/week staff - Monday through Thursday, 8 hours/day and 5.5 hours on Friday and
- for 40 hour/week staff - 8 hours per day, Monday through Friday.

In the absence of any other agreed upon arrangements these are the hours which will be worked.

In situations where there is need for 24 hour and/or 7 day/week coverage the hours of work will be a matter of local arrangement.

"NORMAL HOURS OF WORK" are either the standard hours of work or another arrangement as agreed upon using this process.

"STANDARD BUSINESS HOURS" are determined by the needs of the business and the customers.

"NORMAL BUSINESS HOURS" are either the standard business hours or another arrangement as agreed upon using this process. The normal business hours are just a variation on the standard business hours. They would normally arise from a change in customer needs.

FLOW CHART OF THE PROCESS

Normal hours of work/business hours
↓
Identify need for change
↓
Communicate need
↓
Develop options
↓
Analysis
↓
Decision
↓
Negotiations/Approvals
↓
Implementation
↓
Monitoring

70.4 Overtime

Hours worked in excess of the normal hours of work will be considered to be overtime except where there has been agreement between the supervisor and the employee for the employee to work in excess of normal hours to make up time.

The pay treatment for Saturday and Sunday will form part of the Agreement which establishes the normal hours of work.

70.5 Process

70.5.1 Identify Need for Change

Identification of the desire for change can come from Management, an individual or a group. A request to change business hours would normally come from Management whereas a request to change working hours would normally come from an individual or group. Where a change to the hours of work for a group is being considered, the Society will be informed and involved in the discussions.

70.5.2 Communicate Need for Change

A request for a change should be communicated to the other party in order that deliberations can begin. Requests will be actively considered by the other party within a reasonable period of time. The process will be joint (Society and Management) and will use a collaborative approach in which the needs and interests of the parties are discussed in an open and honest manner and decisions are made by consensus.

70.5.3 Develop Options

A list of options will be jointly developed and agreed upon. As a minimum, the following criteria will be considered when analyzing the options:

- customer needs
- business needs
- maximum/minimum number of hours that can be worked daily
- overtime/premium provisions
- employee needs
- health and safety considerations
- legal and contractual considerations

70.5.4 Analysis

All options should be analyzed using appropriate tools and measures. The analysis should include a discussion of the options considered, their relative merits and the rationale for the recommendation.

70.5.5 Decision

All decisions will be reached by consensus. If consensus is not achieved then the existing "normal" hours remain in effect.

Consensus means everyone can live with and publicly support the outcome.

70.5.6 Negotiations/Approvals

Negotiations and/or approvals should occur at the appropriate level closest to the situation. The line Director will determine the appropriate level of Management approval and in all cases the Management approval must be outside of the bargaining unit. If necessary, mid term agreements will be established between Management and the Society to document normal hours of work or normal business hours.

All parties to negotiations under Article 70 should negotiate with the support of principals who will ultimately approve negotiated conditions.

70.5.7 Implementation

Implementation will be on a trial basis initially for an agreed upon length of time and with appropriate cancellation provisions. Criteria for success/failure must be established.

70.5.8 Monitor

The trial will be monitored and evaluated against the criteria. The accountable manager is responsible for monitoring the arrangement.

Following a successful trial period the hours (business hours of work) used in the trial period will become the new normal hours.

Monitoring of key indicators will continue to ensure that the arrangement remains viable.

In the event that the viability ceases to be realized, as determined by either party, the hours of work will revert to the previous "normal" hours unless the parties can jointly find another mutually acceptable alternative. When either party is making a determination about viability it must consider the previously established criteria for success/failure.

71 REDUCED HOURS OF WORK (RHOW) ARRANGEMENTS

71.1 Principles

71.1.1 Employees working RHOW are regular employees and have equal access to all Hydro One policies and agreements (e.g. employment continuity).

71.1.2 The RHOW arrangement must be mutually beneficial and acceptable to both the employee(s) and to Hydro One.

71.1.3 The benefit entitlement will be prorated, wherever possible and appropriate.

71.2 Definitions

A "REDUCED HOURS OF WORK (RHOW) AGREEMENT" is a formal arrangement which individual employees can enter into with Management to perform work over a

period of time by working less than the base hours for a full-time position. A RHOW agreement could apply to one individual or two or more in a job sharing arrangement.

"WORK UNIT" is an organizational grouping of employees and may be as small as a crew or as large as a Business Unit.

"BASE HOURS" are used to establish the rate for a full-time position; such as 35, 37.5, or 40 hours per week.

"NORMAL (SCHEDULED REDUCED) HOURS" are the agreed upon reduced hours of work, which are less than the base hours, and form the basis for prorating benefits.

71.3 Guidelines

In determining if a RHOW arrangement is acceptable, the following factors will be considered:

Productivity levels will be maintained or improved. There should be identification of how this change will potentially affect the productivity of the work unit (including assumptions and rationale used to assess the impact), and identification of the proposed method for follow-up and measurement of productivity impact(s) resulting from the change.

The need to maintain staff capability on an ongoing basis is to be taken into account. Identification of the staff capabilities required by the work unit to maintain effective operations, and how the reduced hours of work arrangement will accommodate or improve this capability should occur.

The appropriate level of service to both external customers and internal customers/clients should be provided. There should be identification of the customers/clients of the work unit and the service provided by the work unit to these customers/clients, and anticipation of the impact of the reduced hours of work arrangement on the service provided.

Effective workflow among work units will be maintained. Other work units impacted by the change, and the anticipated impact of the reduced hours of work arrangement on the workflow among the work units should be identified.

Requirements for supervision must be taken into account. Potential issues relating to supervision (e.g., span of hours), and how the work unit plans to deal with these issues should be determined.

The change to reduced hours should be agreeable to both Management and the employee(s) involved. A written Reduced Hours of Work Agreement must be signed to confirm that this matter has been agreed upon by the parties involved.

71.4 General Conditions - Reduced Hours Arrangements

71.4.1 Advertised Vacancies, Performance Pay, and Employment Continuity

Employees who are on Reduced Hours are regular employees and will be treated accordingly. Therefore, they will be: (a) eligible to apply and be considered for advertised vacancies; (b) given annual performance reviews; (c) where applicable, participate in the ***step progression*** process; and (d) have access to the *Article 64*.

71.4.2 Established Commencement Date (ECD)

ECD will be manually adjusted at the beginning of each year, to reflect the normal (scheduled reduced) hours worked in the previous year while on Reduced Hours, or at such intervals as may be necessary, to reflect the equivalent full years worked. ECD will not be adjusted for sick leave purposes.

71.4.3 Vacation Credit Date (VCD)

The VCD will not be adjusted. It will reflect calendar years. This date affects vacation bonus entitlement for all eligible staff and includes all Hydro service regardless of breaks. It may be different from the ECD.

71.4.4 Service Recognition Date (SRD)

For recognition of 5, 15, 25, and 40 years of service with Hydro One and consistent with the provisions of Section 9.4, the SRD will not be adjusted.

71.4.5 Wages

Reduced hours employees will be paid for normal (scheduled reduced) hours worked, based on the hourly rate for their base hours. Wages will be prorated based on the proportion of the normal (scheduled reduced) hours of work compared to the base hours of the work unit or the appropriate full time position.

Example: Base Hours = 35 per week.

Base Salary = $700.00 per week.

Normal (Scheduled Reduced) Hours = 21 per week.

Normal (Scheduled Reduced) Hours Salary = $700.00 x 21/35 = $420.00 per week

71.4.6 Pension Plan

71.4.6.1 Pension Plan Membership

New employees working reduced hours must apply for membership in the Pension Plan after completing 24 months of continuous service, subject to the following conditions:

- accumulated earnings, including overtime, must equal 35% of the Year's Maximum Pensionable Earnings (YMPE),

and/or

- all accumulated hours, including overtime, must equal 700 (scheduled reduced) hours in each of the two previous calendar years.

71.4.6.2 Pension Plan Deductions

Once qualified as above, Pension Plan deductions for Regular Reduced Hours employees will be based on base earnings for the position and then

pro-rated in proportion to the ratio of normal (scheduled reduced) hours to base hours.

Example:		
	Base rate (earnings)	$45,000
	Base hours	35
	Normal hours	20
	YMPE for year	$32,000

Calculate 4% of the base earnings up to the first $32,000 (4/100 x $32,000 = $1,280)

Calculate 6% of the portion of base earnings exceeding the first $32,000 ($45,000 - $32,000 = $12,800) (6/100 x $12,800 = $768)

Calculate proportional Pension Plan contributions ($1,280 + $768 = $2,048) (20/35 x $2,048 = $1,170.29).

Calendar service will be used to determine eligibility for retirement and death benefits (currently defined for pension purposes as Eligible Service or Continuous Employment).

Service credit to define the years of Pension Plan membership (years of membership in the Pension Plan) for pension calculation purposes (currently defined by the Effective Date on Pension and Insurance) is prorated. See pension calculation example below.

The Service Credit starts from the date of joining the Pension Plan.

Service for termination benefits, currently defined by the Pension Termination Service Date (PTSD), is to be credited on a calendar basis starting with the date of hire. Service related to the PTSD is not prorated.

71.4.6.3 Pension Calculation

The following is an example of how the pension of an employee in a Reduced Hours of Work arrangement would be calculated. Assume an employee has the following years of employment: 20 years full-time, followed by 5 years of 50% part-time, and then 10 years full-time.

For pension eligibility purposes the employee has 35 years' service, i.e. 20 + 5 + 10 to calculate the amount of pension to be received the part-time years are pro-rated.

20 + 5/2 + 10 = 32.5 years pensionable service
30 + 5/2 x 2% = 65% pension.

If the reduced hours years were the last five years, i.e. 30 years full-time + 5 last years at 50% part-time, the part-time earnings would be annualized as follows, assuming the part-time earnings are $25,000 or 50% of the yearly rate of $50,000 for the last three years of employment.

The calculation is as follows:

(30 + 5/2) x 2% = 65% pension
annualized pension is $50,000 x 65% = $32,500/year.

71.4.7 Life Insurance

Probationary employees after 3 months service and all regular employees are covered under the Group Life Insurance Plan. Membership in the plan begins on the first day of the month following the date the employee completes 3 months of probationary service or is granted regular status. The basic insurance (2 times salary) plus any additional term insurance will be prorated in accordance with the prorating of wages above.

71.4.8 Health and Dental Benefits

Employees will have the option of receiving full benefit coverage for semi-private hospital, extended health benefits, and/or dental benefits, by using payroll deduction to reimburse Hydro One the cost consistent with the appropriate pro-ration. For example:

If an employee works 21 hours per week, he/she would be subsidized for 21/35 or 60% of the costs and he/she would pay the remaining 40%. If an employee chooses not to pay the remaining prorated percentage, there will be no coverage.

71.4.9 Sick Leave

Restoration of sick leave credits for days used will be in accordance with the Sick Leave Plan provisions.

Sick leave should accumulate at the regular times (January 1 or July 1). While ECD is adjusted for other purposes, sick leave accumulation and restoration dates should remain unchanged.

Annual sick leave credits will be prorated, based on normal hours worked.

Example

100% Entitlement Accumulation

- Employee works 21 hours per week 21/35 x 8 days = 4.8 days, rounded to 5 days.

75% Entitlement Accumulation

- Employee works 21 hours per week 21/35 x 15 = 9 days.

Rounding should be to the nearest half day. Time Reporting for vacation, sickness, accident and overtime, etc. will be the same as for any other regular employee.

71.4.10 Long Term Disability (LTD)

Long term disability (LTD) coverage is only available to members of the pension plan. An employee will become a member when given regular status following his/her probationary period. Benefits will be based on the employee's normal (scheduled reduced) earnings, excluding overtime and allowances.

71.4.11 Accident Insurance

Employees are eligible for 100% benefit.

71.4.12 Statutory Holidays

Both the entitlement to statutory holidays and the payment for the statutory holidays will be prorated. The following table illustrates the entitlement:

Days Worked Per Week	Number of Days Entitled to per Year
1	2
2	4
3	8
4	8 (9 for Federally-Regulated Employees)
5	10

The pay on a statutory holiday will be equal to the pay for the average daily hours of the RHOW employee. For example:

An employee works 4 days per week @ 5 hrs per day. In accordance with the entitlement table above the employee is entitled to 8 statutory holidays per year. Payment for each statutory holiday will be for 5 hours since that is the average of the 4 days per week the employee works.

71.4.13 Floating Holidays

These will be prorated in the same manner as statutory holidays, i.e. both the entitlement and the payment on the days will be prorated. For example, an employee who works 3 days per week and 7 hours on each day worked will receive:

3/5 x 3 days = 1.8 rounded to nearest half day = 2 days

The payment for each day will be for at 7 hours since that is the average hours per day the employee works.

71.4.14 Vacation

A. Less than 1 year - 4% of accumulated wages.

B. For one year, or more:

Vacation entitlement will be based on calendar years (i.e. VCD). The entitlement in any given year will be prorated based on the average number of days worked per week and the actual payment for those days will be based on the average number of hours worked per day.

Example - (a)

A regular full-time employee who commences RHOW on January 1 and who otherwise would be entitled to 20 days' vacation, contracts to work 3 days per week at 7 hours per day (21 hours per week), for the full vacation year, while the remainder of the work unit works 35. The vacation entitlement will then be:

20 x 3/5 = 12 scheduled days off.

The payment on each of the 12 days would be for 7 hours pay since that is the average number of hours the employee works per day. Therefore the total pay will be 12 days @ 7 hours pay = 84 hours pay.

Example (b*)*

An employee who works 5 days per week but works only 4 hours per day.

20 x 5/5 = 20 scheduled days off

The payment for each day would be for 4 hours since that is the average number of hours the employee works per day. Therefore the total pay will be 20 days x 4 hours pay = 80 hours pay.

71.4.15 Overtime

The normal lieu time provisions will apply. Overtime will be paid at appropriate rates for:

- hours worked beyond the base full-time hours on a day (unless additional hours are part of the RHOW arrangement);
- hours worked beyond the base full-time hours in a week;
- hours worked on a Saturday, Sunday or statutory holiday that is not a normally scheduled day.

71.4.16 Pregnancy/Parental Leave

Employees will be eligible for pregnancy/parental benefits. Coverage will be based on normal (scheduled reduced) earnings and normal (scheduled reduced) hours.

71.4.17 Unemployment Insurance Contributions

This is based on gross earnings (which includes overtime premiums, shift differential, etc.).

71.4.18 Canada Pension Plan (CPP)

CPP contributions are based on gross earnings.

71.4.19 Workers' Compensation Benefits

Entitled to 90% of normal weekly net earnings, plus a supplementary grant (total is 100% of normal weekly net earnings).

71.5 Termination of the RHOW Agreement

The initial period of a RHOW arrangement will be considered to be a trial period. The length of the trial period is to be determined by the parties but will not normally be longer than 1 year. If problems are encountered during this period, the employee(s) and the supervisor will attempt to find a solution(s). In the event that these efforts are not successful the RHOW arrangement can be cancelled by either party with 30 days' notice.

After the trial period, situations may arise where the RHOW is no longer working or the workload has increased or decreased. In such situations alternate arrangements can be tried. These could include offering additional hours/days (if there is some) to the RHOW employee, or advertising another RHOW arrangement to make up any difference.

In situations where the workload increases, the employee working the reduced hours will have the first option of working the additional hours. The employee could choose not to work the additional hours. If satisfactory alternative arrangements are not found, Article 64 will be applied.

An employee who wishes to terminate the arrangement has the same rights to vacancies as full-time employees. If unsuccessful in obtaining another position or in negotiating a new arrangement with Management, and the employee terminates the arrangements, the employee will be considered to have resigned from Hydro One.

(SAMPLE) REDUCED HOURS OF WORK AGREEMENT

To: _____Department: _____

Effective date: _____
Type of Arrangement: ___Individual ___ Job Sharing ___Temporary Work

The following information is pertinent to your Reduced Hours of Work Agreement with Hydro One.

1. Hours of work:

   _____ days (_____ hours) per week, _____ hours per day.

2. Salary:

   Weekly salary will be $ _____ per week based on scheduled reduced hours of per week at Schedule ____ Grade _____.

3. Health and Dental Benefits:

Indicate, by circling the appropriate "yes" or "no", whether or not you are exercising the option of receiving full benefit coverage for semi-private hospital coverage, extended health benefits, and/or dental benefits, using payroll deductions to reimburse Hydro One for the cost consistent with the appropriate proration. Should you elect health and/or dental benefits, the monthly cost will be as follows:

Elected Coverage:
Semi-private hospital coverage _____%$_____Yes / No
Extended Health Benefits _____%$_____Yes / No
Dental Benefits _____%$_____Yes / No

4. All other terms and conditions will be in accordance with the Article on Reduced Hours of Work for Society Represented staff.

The trial period will be for ____ months. The parties agree that the agreement can be terminated with one month's notice during this trial period in the event the arrangement is unsuccessful.

If you agree with the conditions set out above, please sign one copy of this agreement for your Personnel File. Also, please indicate if you wish to be covered by any, or all, of the above health and dental benefits.

Manager: _____ Employee: _____
Date signed: _____ Date signed: _____

cc: Human Resources office Society Unit Director

71.6 Responsibilities

The Employee(s):

The employee(s) should discuss his/her interest in a Reduced Hours of Work agreement with the manager/supervisor. An employee who wishes to work Reduced Hours should prepare a proposal for doing so. The proposal should include a current job description and ways in which the job requirements could be met under a Reduced Hours of Work agreement. It should include suggestions for methods of communication among Regular staff members, their managers/supervisor, customers and clients with whom the job interfaces, as per the Guidelines (Section 71.3).

The Manager/Supervisor:

The Manager/Supervisor is responsible for determining if a Reduced Hours of Work agreement is appropriate and in certain instances may initiate action to implement such an arrangement. The Manager/Supervisor will discuss the possibility of a Reduced Hours of Work agreement with interested employees to assist them in establishing appropriate arrangements. The Manager/Supervisor will identify issues specific to the job which need to be addressed, inform employees of their entitlements and approve the proposed Reduced Hours of Work agreement after the appropriate review.

The Manager/Supervisor is responsible for ensuring that the productivity in the work unit does not deteriorate as the result of a Reduced Hours of Work agreement. If productivity is seen to decline, the supervisor should work with the incumbent(s) to identify ways to improve the situation.

72 PEAK DEMAND HOURS ARRANGEMENTS

72.1 Intent

The intent of this Article is to establish a framework of treatment of employees who by the nature of their jobs, are likely required to work more than their normal work week and/or hours different from their normal hours during peak work load periods of the year, and less than the total hours in a normal work week during other parts of the year.

The guidelines for the application of this Article are contained in Appendix V.

Once it has been decided to apply this Article within a business unit, Management will meet with the Society to determine how best to apply these guidelines in their particular situation. The parties are not required to rigidly adhere to the guidelines in Appendix ***V*** and may revise them as they deem appropriate.

Either party may refer unresolved items to “interest” arbitration for resolution.

72.2 Process

The parties will develop a design for the Peak Demand Hours Arrangement in local areas using Appendix V as a guideline**,** including an implementation plan for the arrangement. That plan could involve staffing the arrangement with volunteers on a test basis. The volunteers would have to volunteer for a full 12-month cycle. The fact that an individual

did not volunteer will not negatively reflect on his/her performance evaluation. The results of that test application could be reviewed by the parties. This review might result in revisions to the arrangement.

It is expected that ultimately the arrangement would become a local mid-term agreement.

73 WORK SHARING

73.1 "Work sharing" occurs when sufficient members of a work unit agree to work fewer hours for reduced compensation in order to accommodate a temporary reduction in work load and to help maintain employment continuity in the event of an adverse impact situation under Article 64 - Redeployment, Surplus Staff Procedure and Change of Employer.

73.2 Work sharing is a temporary arrangement. A work sharing arrangement will normally not exceed one year in duration but can be extended by mutual agreement. Beyond a period of one year, a work share arrangement will normally be governed by the terms and conditions of Article 71 - Reduced Hours of Work (RHOW) Arrangements.

73.3 The Society will be involved in the discussion and negotiation of the work sharing arrangement.

73.4 The size of the work unit involved in the work share will be the subject of joint agreement between Hydro One and the Society. The agreement of the employees participating in the work sharing arrangement must be obtained prior to implementation. A sufficient number of employees in the work unit must participate in order to make the work share a viable working arrangement.

73.5 Either party to a work sharing arrangement will have the right to terminate it with 30 days' written notice. Following termination of a work sharing arrangement, the previous hours of work arrangement will be reinstated. Reduction in the number of employees in a work sharing arrangement through attrition, promotion, etc. will result in a joint review in order to ascertain the continued viability of the work share.

73.6 Employees participating in a work sharing arrangement remain regular employees.

73.7 Reduction in hours of work pursuant to a work sharing arrangement will not exceed 20% of regular hours and will be matched by an equivalent reduction in salary for a maximum of one year.

73.8 Employees participating in a work sharing arrangement will retain full benefits coverage during the term of the work sharing arrangement up to a maximum period of one year.

73.9 Pension, life insurance and LTD coverage will continue to be calculated against regular base earnings during the term of a work sharing arrangement up to a maximum period of one year.

73.10 Employees will continue to participate in the ***step progression*** process while participating in a work sharing arrangement.

73.11 Employees will not be declared surplus while participating in a work sharing arrangement. This section will be suspended during the operation of Article 64 -- Employment Continuity.

74 ASSIGNMENT OF NON-BARGAINING UNIT WORK DURING A STRIKE/LOCKOUT

Normally, Hydro One shall not assign an employee to perform non-bargaining unit work unless this work is essential work. It is agreed that the following provisions govern the assignment of essential work, ordinarily performed by employees in another bargaining unit, to Society-represented employees in the event that the members of that bargaining unit are in a lawful strike/lockout situation.

74.1 If a job/function is not performed, it is considered "essential work" if it would result in:

a) a dangerous or unsafe situation for employees or the public;

b) a threat to the environment;

c) damage to equipment, systems or property;

d) the violation of licenses, regulations or other statutory requirements as applicable in (a), (b) and (c) above;

e) activities going undone which are required to support employees who are performing essential work in accordance with (a), (b), (c) and (d) above;

f) such other condition or concern as may be reasonable in the circumstances.

74.2 The process for identifying and assigning work will be a joint process involving a Management representative(s) designated by the Business Unit and the Society Unit Director/designate(s) of the Business Unit. As a part of this process, an employee will advise the Management Representative(s) and the Society Unit Director/ designate(s) in a timely manner as to whether he/she will accept the tentative work assignment. Due consideration will be given to family or extenuating personal circumstances raised by an individual employee prior to assigning essential work.

74.3 Requests to employees to accept essential work assignments will contain as much information about the assignment as possible, such as work location and training schedules. It is expected that Management will request work assignments as close to employees' home locations as possible.

74.4 In the event that the Society claims that an activity is not "essential", it may make a claim before George Adams as facilitator/arbitrator, who shall make a ruling on an expedited basis.

74.5 Hydro One may assign work involuntarily to Society-represented staff if no MF/ESR or qualified Society volunteers are available. There is no obligation to assign MF/ESR before seeking a Society volunteer.

74.6 Any proposed shift schedules which may be worked by Society-represented employees during assignment to non-bargaining unit work shall be reviewed by the appropriate Society Unit Director/designate prior to the official issuance of the shift schedule.

74.7 Employees assigned to essential work will have the appropriate skills and training to perform the duties.

74.8 The terms and conditions of compensation for performing essential work are as follows:

74.8.1 General

74.8.1.1 All policies and practices and terms of the collective agreement which normally apply to Society-represented staff will continue to apply during a strike/lock-out unless modified, replaced or set aside in accordance with this Agreement.

74.8.1.2 All employees, including employees not assigned to work of another bargaining unit, will continue to receive their normal pay rate, including performance standing, for their regular job.

74.8.1.3 For those employees who normally work shifts, all existing shift schedule arrangements, including time-balanced schedules, will be suspended from the date the work stoppage commences until the work stoppage ends. Compensation treatment will be equitable for all employees assigned to essential duties during the work stoppage.

74.8.1.4 All employees assigned to essential duties will be compensated based on a 35-hour work week. As a minimum, employees will continue to receive pay equivalent to their normal base earnings. For employees whose rate is normally based on a 37.5 hour or 40 hour week, a premium of 0.5 times the hourly rate will apply after 35 hours in a week until their normal hours of work (i.e., 37.5 or 40) is reached. Overtime beyond this will be compensated at the appropriate overtime rate.

A positive time balance will be paid at the termination of the essential service assignment and a negative time balance will be written off.

74.8.1.5 For situations involving the crossing of picket lines, refer to Article 77 of the Collective Agreement (“Crossing Picket Lines of Other Unions”).

74.8.2 Compensation

74.8.2.1 Scheduled Work on Weekdays

74.8.2.1.1 Employees assigned to essential work will be compensated at straight time rates for the first seven (7) hours of work. The following seven (7) hours worked shall be compensated at time and one half subject to treatment for employees normally working 37.5 or 40 hours a week as outlined in Clause 74.7.1.4.

74.8.2.1.2 All hours worked in excess of fourteen (14) continuous hours shall be compensated at:

a) double time; or
b) straight time plus an hour off for each hour worked in excess of fourteen (14) hours.

74.8.2.2 Scheduled Work on Saturdays, Sundays, and Statutory Holidays

74.8.2.2.1 All employees assigned to work shifts and scheduled to work on Saturdays and Sundays will receive straight time pay for the first seven hours worked as part of a normal scheduled work week.

74.8.2.2.2 All employees assigned to work shifts will receive straight time pay for the first seven hours worked on a statutory holiday as part of their normal scheduled work week. One hour off for each hour worked up to the statutory holiday credit (seven hours) will be given at a later date acceptable to the employee and Management.

74.8.2.2.3 The appropriate shift allowances as per Article 60 (“Shift Work [M&P, TMS]”) and Article 61 (“Shift Work [FM&P]”) will be paid to all employees required to work shifts.

74.8.2.3 Overtime Worked on Saturdays, Sundays and Statutory Holidays

74.8.2.3.1 Employees shall be compensated at time and one half for the first fourteen (14) hours worked on a Saturday.

74.8.2.3.2 Employees shall be compensated at double time for the first fourteen (14) hours worked on a Sunday.

74.8.2.3.3 Employees shall be compensated at double time for the first fourteen (14) hours worked on a statutory holiday. In addition, one hour off for each hour worked up to the statutory holiday credit (seven hours) will be given at a later date acceptable to the employee and Management.

74.8.2.3.4 All hours worked in excess of fourteen (14) hours on a Saturday, Sunday or statutory holiday will be compensated at:

a) double time; or
b) straight time plus an hour off for each hour worked in excess of fourteen (14) hours.

74.8.2.4 Time Off in Lieu

Employees may choose to be compensated in money, paid time off, or a combination of both for overtime worked while assigned to essential work. Scheduling of time off will be subject to agreement of the regular supervisor following the end of the work stoppage.

74.8.2.5 Travel Time

All travel time except time spent in travel when called out for any emergency overtime, will be compensated at straight time. Travel time for emergency overtime will be considered as overtime.

74.8.2.6 Expenses

74.8.2.6.1 Reimbursement will be made for appropriate out-of-pocket expenses incurred as a result of undertaking assignments during a strike situation. As such employees should not profit from reimbursement of expenses. Appropriate expenses include, but are not limited to, travel, meals, accommodation, cancellation of vacations, increased child care, and damage or loss of private property.

74.8.2.6.2 Expenses incurred during a temporary assignment will be submitted to the temporary supervisor for approval.

74.8.2.7 Essential Work Rating Scale

The Essential Work Rating Scale set out in Attachment A forms part of this Agreement and will be updated by the Joint Society-Management Committee, prior to application.

ATTACHMENT A

Essential Work Rating Scale

(A) WORKING CONDITIONS

Employees who are assigned to essential work will automatically receive credit for this factor. It is assumed the individual will be subjected to pressures, demands or unfavourable/hazardous working conditions which deviate significantly from the norms of the regular position. Employees/supervisors whose work responsibility will increase significantly as a result of a work stoppage may be assigned to special duties by their respective line management.

Payment per Day: $30.00

(B) SHIFT ASSIGNMENT

Employees who are assigned to work a shift schedule will automatically receive credit for this factor for each day they work the shift schedule.

Payment per Day: $30.00

(C) SPECIFIC ALLOWANCES

The following allowances are to compensate for situations where employees are required to perform essential work under specific working conditions.

An employee can receive compensation for only one of the following allowances.

24- Hour Availability

An employee who is required or elects to remain at a designated place, other than home (e.g., motel) in readiness to proceed immediately to the work location on a 24-hour basis.

Hours worked by an employee are included in this 24-hour period.

Payment per Day: $46.00

OR

Remaining at Hydro One Facilities on 24-Hour Basis

An employee is required to remain/live at the work location for a 24-hour period.

Payment per Day: $120.00

On-Call Service

An employee is permitted to remain at home following his/her scheduled work but is required to be available to work outside normal working hours.

(Reference: Article 57 - “On-Call Service”)

Note: Employees who are required to live at the work location on a continuing 24-hour basis and will be paid for only those hours worked plus the applicable allowances.

75 TELEWORKING

75.1 Definition of Teleworking:

Telework refers to a Hydro One employee who:
- Is working out of an office in his or her home;
- Does not normally have another office at Hydro One;
- Is not working at home on an occasional or casual basis.

75.2 Collective Agreement Standards:

Where Hydro One determines that teleworking may be implemented, the following provisions will apply:

a) The arrangement will be mutually agreed upon and will be documented prior to commencement of teleworking;
b) The terms and conditions of the collective agreement will apply except where modified by agreement among Hydro One, the Society and the employee;
c) Teleworkers will not be required to meet with customers or other Hydro One employees in their home;
d) Teleworking arrangements will be voluntary, and are subject to cancellation as locally agreed;
e) Teleworking will not change the employment status of the teleworker;
f) Hydro One will provide appropriate health & safety advice and guidance to the teleworker;
g) Hydro One will provide appropriate business and personal security advice to the teleworker;
h) Hydro One shall provide all furnishings/equipment it deems necessary to meet job expectations;
i) Hydro One will pay for additional insurance costs, if required;
j) If the teleworking arrangement is terminated then the employee will be entitled to relocation assistance as provided in the collective agreement;
k) It is agreed that the Society represents employees who fall within the Society recognition clause of the Collective Agreement and who are teleworking;
l) Hydro One will provide in a timely manner the Society with the names, business phone number and business address of teleworkers.

75.3 Local Agreements

Local management, the employee and the Society will agree on these items as part of a local agreement:

- performance measures
- relevant terms and conditions (e.g. travel)
- training where appropriate
- sunset (with a minimum term)
- cancellation

76 DIRECT DEPOSIT

Employees will be paid weekly by means of electronic deposit. Bi-weekly pay will be implemented in accordance with LOU #9. Time exceptions (e.g. overtime) will continue to have a time lag. Such time lag will only be for the period required for the effective operation of the time reporting centres and pay processes.

77 CROSSING PICKET LINES OF OTHER UNIONS

77.1 Employees will be required to cross picket lines of other unions in order to perform work at their regular/temporary work headquarters.

77.2 During such picket action, some flexibility with respect to the normal scheduled hours of work on the part of both Management and the employee is particularly desirable.

77.3 Normally, an employee who is prevented from arriving at work for his/her normal starting time due to such picket action will have his/her salary maintained without the requirement to make up the hours missed, subject to the following guidelines:

a) An employee is expected to make a reasonable attempt to arrive at work at their normal starting time.

b) If an employee who is late for work should have been able to cross the picket line without being late, the no work - no pay principle will apply.

78 THE PROVISION OF FRENCH LANGUAGE SERVICES

78.1 Designated Positions

Hydro One will designate positions that require French language capability, to the extent required by the Act. Hydro One shall determine the actual number of positions to be designated and which positions will be designated.

Changes to the designated positions require joint agreement between the local Contact Supervisor/Human Resources Manager and the Unit Director. Whenever a change is made to the designated positions list, the Contact Supervisor/Human Resources Manager will provide written notification of the addition to the Society office and Labour Relations, Hydro One Human Resources. Labour Relations, Hydro One Human Resources will issue an up-to-date version of the designated positions list annually to the Society. A position can only be removed or modified when it is vacant.

78.2 Job Security

The implementation and operation of this Article will not result in any declarations of surplus, lay-offs, displacements, forced geographic relocations or financial losses.

78.3 Training

Hydro One will not impose any mandatory training for the purpose of complying with the Act. Any person wishing to take optional external training to obtain French language capability will be provided 100% financial support, so long as the request is in accordance with Article 83 - Extramural Training. In locations where extramural training in French is not available, Hydro One will provide, at no cost to the employee(s),

self-paced learning packages in order to assist interested staff to become qualified in French.

78.4 Posting and Selection

French language capability is deemed to be a legitimate selection criterion, in addition to the normal selection criteria, for officially designated positions. The job documents for designated positions will not be amended to include French language proficiency as a duty and/or evaluation factor pending future discussions with the Society.

A notice of posting for a designated position will contain the following wording:

"This position requires the ability to communicate in French. This ability is deemed to be a qualification for the purposes of selection."

French language capability will only be used as a selection criterion when the number of qualified incumbents in a designated position falls below the number specified in this Article. Specific qualifications and requirements must be posted and reasons given for non-selection in writing.

In cases where a location has more than the required number of qualified incumbents in a designated position, the officially designated employee(s) shall be those who are senior and qualified.

78.5 Surplus Staff

When a surplus employee applies to a designated position she or he shall receive the selection priorities established in Article 65 to the extent that the organizational unit retains the capability to meet the requirements of the Act.

78.6 Allowance

Hydro One will pay an allowance of $18.00 gross weekly. It is recognized that the allowance may be paid to all qualified employees in a designated position in a location, rather than just the employees who officially occupy the designated position. This allowance is the same regardless of the number of hours an employee works per week.

The allowance will be paid only while the incumbent is in a designated classification. The payment of this allowance will cease once the employee has been absent for two months. Transfer to an undesignated position, or removal of a position from the designated positions list, will cause immediate stoppage of the allowance.

An employee who relieves in a designated position must have the French language capability required by the position in order to receive the allowance.

79 SPECIAL CLOTHING

79.1 Employees are responsible for providing, at their own expense, suitable clothing for the performance of their regular duties. Subject to certain conditions, outlined below, special clothing may be obtained at the expense of Hydro One for issue to employees.

79.2 Hydro One will make bulk purchases of certain types of work clothing, for resale to employees, on the most favourable terms possible.

79.3 A limited number of rainproof coats and hats may be obtained and kept available at construction headquarters etc, for persons who normally work indoors, but who are occasionally required to work out of doors under adverse weather conditions.

79.4 Safety items that are designed exclusively for such safety purposes will be provided to employees required to perform certain types of work, at no cost to the employee.

79.5 All clothing issued by Hydro One will remain the property of Hydro One. Employees may be required to replace item(s) lost or destroyed as a result of their own carelessness.

79.6 Staff will be reimbursed for the cost of up to two pairs of protective footwear per year where such footwear is required by Hydro as follows:

- Safety boots/shoes - 50% of actual cost to a maximum of $75/pair;
- Electric Shock Resistant Footwear - 100% of actual cost to maximum of $150.00/pair, subject to an annual maximum of $250.00.

79.7 Requests for special items of clothing not specifically mentioned, but which might be reasonably supplied under the conditions set out above, will be considered, each case on its own merits. Such clothing must be kept available for any Hydro employee who may require it for Hydro One work.

80 PAYMENT FOR USE OF PERSONAL VEHICLE

80.1 Where an employee is authorized to use his/her personal vehicle for Hydro One related business/travel, the rate of reimbursement will be based on the Private Transportation Component of the Canadian CPI as reported by Statistics Canada. The rate of $0.***50*** per kilometre took effect on ***October*** 1, 200***7***.

80.2 Future increases of one cent/km will occur with each additional 10% increase in the Private Transportation Index - 1986 = 100. A decline in the Index below a previously surpassed trigger point for two or more consecutive months will result in a reduction by the appropriate amount of the rate paid.

If the Hydro One business/travel involves the hauling of household trailers, an additional $0.09/km will be paid. For the hauling of smaller trailers (Camper, Ski-doo, boat etc.), the amount will be $0.03/km. The above rates will apply on a province-wide basis.

80.3 By virtue of receiving the above kilometre rates, the employee is responsible for any expenses incurred involving his/her vehicle while on Hydro One's business. This would include such items as insurance premiums, license fees, traffic/parking violations, maintenance costs, any repairs or replacement of parts, fuel, lubricants and the like. The employee is further responsible for informing his/her insurance company that the vehicle is being used for business purposes, and for paying any additional premium that the insurance company deems fit.

80.4 An employee driving his/her personal vehicle on Hydro One business must have a minimum of $1,000,000.00 liability insurance.

81 BUSH FIRE FIGHTING AND VOLUNTEER FIRE BRIGADES

81.1 Employees who are conscripted by the Ministry of Natural Resources for bush fire fighting or employees who participate in local Fire Brigades may be granted time off work with pay subject to the following conditions:

81.1.1 Regular and Probationary Employees - Bush Fighting

Regular and probationary employees will have their normal base pay maintained.

81.1.2 Temporary Employees - Bush Fighting

Temporary employees will have their normal base pay maintained for a maximum of five working days or to the end of the intended employment period, whichever comes first. If the fire fighting period extends beyond five working days, the employee will be placed on an unpaid leave of absence until he/she returns to work, or to the end of the originally intended employment period.

81.1.3 Volunteer Fire Brigades

Employees who are registered volunteer fire fighters may be granted leave of absence with pay if called to service while at work.

82 EXTREME WINTER WEATHER CONDITIONS

In the event of extreme winter weather conditions, employees will normally receive pay for hours worked.

82.1 Make Up Time

Employees who, due to extreme winter weather conditions, arrive late, miss work or receive approval to leave early, may seek approval to make up lost time by working back the missed hours by:

a) using a vacation day;

b) using a floating holiday;

c) using a lieu day (or banked time where applicable).

82.1.1 For employees who receive approval to work back the lost time, their pay will be maintained for the number of normal scheduled daily hours lost, provided there is work available to be performed.

82.1.2 Employees will work at straight time rate of pay while working back the lost hours.

82.1.3 Time lost due to extreme weather conditions will be worked back within the pay week period. Any lost time not worked back by the end of the pay period will be deducted from the employee's pay.

82.1.4 Senior Management at the location have the discretion to maintain some or all of an employee's normal base pay if they are satisfied that every reasonable effort was made to report to work on time.

82.2 Closure

Employees included in an authorized closure will have their pay maintained for the number of hours between closure and normal quitting time.

82.3 Stranded Employees

Employees who are confined at a regular work location which is an acceptable shelter, will have their normal base pay maintained for their normal scheduled hours of work.

82.3.1 Payment for time worked in excess of normal scheduled hours will be made only if approval was given in advance for such work.

82.3.2 Employees will be reimbursed for reasonable expenses for food and shelter, and will have normal base pay maintained when stranded away from their residence headquarters while on Hydro One business.

82.3.3 Employees working in a location where a minimum level of acceptable shelter does not exist shall be considered as still being at work until acceptable shelter can be reached.

83 EXTRAMURAL TRAINING

In order to enhance a regular employee's job performance now, or in the future, Hydro One may provide financial support for external training activities consistent with Hydro One Policy, subject to the following conditions:

a) the employee is expected to obtain prior approval from his/her supervisor prior to registering in the training course;

b) the external training should normally be completed outside normal working hours. Where this is not possible, time off with pay to attend external training programs will be at the discretion of the employee's supervisor. In no circumstances will the external training exceed six weeks if the employee is required to be absent from work.

c) 100% of reasonable costs paid by the employee for external training courses will be reimbursed where:

- the training course will create or maintain the employee's capability related to current job performance;

- the training course develops an employee's capability for a position identified in a succession, retraining, or redeployment plan.

d) 75% of registration/tuition fees and learning material costs will be paid for external training courses which improve an employee's capability for future jobs within Hydro One.

e) An employee will be reimbursed for reasonable costs subject to:

1. Satisfactory course completion and a passing grade where applicable, except where the course is taken upon the request of Management.

2. Costs will not be reimbursed if the employee has given notice of resignation prior to completion of the course.

3. All approved costs will be reimbursed for courses which cannot be completed due to the employee being transferred to another location.

84 MEAL EXPENSES

Normally, employees are expected to provide their own meals. Where there is a requirement for a meal as a result of legitimate business functions, employees will be entitled to be reimbursed for reasonable out-of-pocket expenses.

85 VOLUNTARY SEVERANCE (NON-SURPUS)

85.1 Employees who wish to discuss a voluntary severance arrangement with Hydro One will be advised by Hydro One to (a) seek independent legal counsel and (b) seek advice from the Society.

85.2 Hydro One will also notify the Society of any employee with whom it is discussing a voluntary severance arrangement and disclose the details of the discussions in advance of finalizing such a severance arrangement with the employee.

86 SECURITY CLEARANCES

86.1 ***The Society acknowledges and agrees that the Employer has the right to perform appropriate Personal Risk Assessments (PRA) on existing, regular employees when required for valid reasons. Where the Employer has reasonable cause to remove an employee from his/her position as a result of an employee's inability to pass a PRA, the employee will be transferred to an equivalent position for which a PRA is not required with no loss of salary.***

PART XIV - ADMINISTRATION

87 REPRESENTATION ON HYDRO ONE COMMITTEES

The parties recognize the roles and responsibilities of appointees to committees and task forces, i.e., as a representative of Management on the one hand, and the Society, on the other. When an employee represented by the Society is appointed by Management, his/her responsibility is to Management. When he/she is appointed by the Society, his/her responsibility is to the Society. This role distinction should be made clear at the time of appointment. Notwithstanding the above, and in keeping with Subsection 2.4 (Supervisory Employees - Code of Ethics), Management will endeavour to appoint its representatives having regard to the Society's interests in effective representation.

88 GUIDELINES FOR SOCIETY REPRESENTATIVES ON CONTINUOUS QUALITY IMPROVEMENT (CQI) TEAMS

In a spirit of mutual trust and co-operation, these guidelines have been jointly developed by the Society and Management to assist the parties when there is involvement by Society-represented employees in continuous quality improvement (CQI) processes.

88.1 Society-represented employees have a legitimate role to play in the development and operation of continuous quality improvement teams at Hydro One.

88.2 When employees representing the Society are to be included on a CQI team, they will be officially appointed by the appropriate Unit Director or the Society Executive following discussions with the appropriate line managers. The Society will normally be provided with a task description or problem identification, including an estimate of the time required, as well as with selection criteria to assist in the selection of appropriate nominees for the activities at hand. The Society retains the right to make the final appointment.

88.3 Employees representing the Society on CQI teams will be given the opportunity to be involved in all aspects of the team activity; i.e., joint communications, joint training and education, etc.

88.4 Only conclusions that have been reached by consensus will be included in the final recommendations of the team.

88.5 The Society and appropriate Management staff should be kept informed regarding implications for any agreements between Hydro One and the Society as the CQI team progresses. Recommendations which impact on agreements will only be implemented when approved by the parties.

88.6 If innovative practices resulting from CQI team recommendations are tested/piloted, it is without setting precedent.

88.7 The Society and the local Human Resources office will be advised in advance of a quality improvement team implementing any innovative work practices, compensation schemes, etc. that challenge agreements between Hydro One and the Society. Sufficient time will be allotted for feedback before any such ideas are implemented.

88.8 Performance appraisals should support CQI processes. Toward that end, participation by Society-represented employees in CQI activities should be considered in a positive light when conducting performance appraisals providing their contribution to the CQI team has been useful.

88.9 Society-represented staff will be reimbursed for reasonable costs related to participation in CQI initiatives by Hydro One.

88.10 As a last resort, any issues relating to quality improvement that cannot be resolved locally should be referred to the Issues Team for further discussion.

89 TRIPARTITE AGREEMENT ON JOINT HEALTH AND SAFETY COMMITTEES

Hydro One and the Society agree to adhere to the Tripartite Agreement below:

TRIPARTITE AGREEMENT ON JOINT HEALTH AND SAFETY COMMITTEES

PRINCIPLES OF AGREEMENT between the employer, the Power Workers Union and The Society concerning the establishment or modification of Joint Health and Safety Committees to meet the requirements and intent of *The Occupational Health and Safety Act*, as amended by Bill 208.

89.1 Size and Composition of Joint Health and Safety Committees

That the size of JHSCs will be determined through discussions and agreement between the three parties.

That the PWU and The Society shall comprise a minimum of 75% of the JHSC membership with the relative percentage of PWU and Society JHSC members being determined by these two parties based on criteria including but not limited to representation by population and historical make-up. Neither union shall have less than 25% of the total number of Committee representatives nor more than 50%. Disputes regarding numbers shall be referred to the Executive level of the PWU and Society for resolution and if agreement is not reached, to an arbitrator mutually agreed upon by the parties for binding resolution.

That Management's Committee representatives will be from outside of PWU and Society jurisdiction.

That the status, rights and treatment of all representatives on the JHSCs will be equal.

That the meetings of the JHSC will be chaired on a rotating basis by the Co-Chair of each party represented on the committee.

89.2 Training and Certification

That all JHSC members will be trained and certified. Training and certification will be jointly determined and in accordance with legal requirements and the PWU and Society Authority to Stop Work Agreements, with the costs to be borne by the employer.

89.3 Policy Committee (Non-legislated)

That a corporate-level Health and Safety Policy Committee shall be established to participate in the formation and evaluation of health and safety strategy and policy, to resolve policy-level issues impacting on tripartite health and safety initiatives including the Work Protection Code and Corporate Safety Rules.

That the Policy Committee be comprised of an equal number of senior representatives from The Society, the PWU and Management.

That the parties will each select their respective committee members.

That the Policy Committee shall meet at least once per quarter.

That the employer shall provide the resources and training that the Policy Committee deems necessary with costs to be borne by the employer. Training development and delivery will be jointly determined.

That the Policy Committee shall receive a formal response to its input to policies/programming within 30 days.

89.4 Annual Experience Review

That each year, upon request by any one of the parties to this Agreement, an experience review be undertaken by the parties of the benefits and difficulties of implementation of the Agreement and the impacts of organizational changes.

89.5 Amendments to the Agreement

Amendments to the Agreement may be made at any time by the parties with mutual agreement in writing. If mutual agreement cannot be reached, the parties will refer to an arbitrator, mutually agreed upon by the parties, for binding resolution.

90 AUTHORITY TO STOP WORK

90.1 Definitions

"Where an Employee's health and safety is in immediate danger" (refer to 8***9***.4.3), "immediate danger" shall mean, "conditions that pose an immediate threat to life or health, or conditions that pose an immediate threat of severe exposure to contaminants such as radioactive materials which are likely to have adverse or cumulative or delayed effects on health."

90.2 Intent

"Responsibilities and Accountability" are intended to reinforce the fact that this is a joint policy for which both parties are jointly responsible, i.e. we are in this together.

90.3 Introduction

Effectively involving employees and Employers in joint health and safety committee activities can enhance workplace health and safety. Under the Occupational Health and Safety Act, the use of Joint Health and Safety Committees (JHSC) is part of the

legislative process which has been labelled as the "Internal Responsibility System" (IRS). Within this participatory management concept, the JHSC's have been given specific rights and responsibilities under the Act such that, with their involvement, the right to know, the right to participate and the right to refuse unsafe work is further enhanced.

Hydro One and The Society of Energy Professionals ("the Society") agree that all unsafe work must be stopped. This Article on health and safety for the authority to stop work will further enhance the activities of the JHSC's and the IRS concept.
Changes to this Article can only be made by mutual agreement of the Joint Working Committee on Health and Safety. Where no agreement can be reached, the matter will be referred to the Issues Team for resolution.

90.4 Authority to Stop Work

90.4.1 Where a workplace is unsafe, a Certified Society and Management member of the local JHSC can jointly prevent the start of the work or stop the work.

90.4.2 Where there is a disagreement between the Certified Society or Certified Management member of the local JHSC that the workplace is unsafe, the issue shall be immediately presented to the local JHSC for review and resolution.

90.4.3 Where an employee's health or safety is in immediate danger, a Certified Society or Management member of the local JHSC can stop the work. After calling the work stoppage, the Certified Society or Management member must contact the respective counterpart immediately and seek to obtain joint agreement on the stoppage as soon as possible. If joint agreement cannot be reached, the issue shall be presented to the local JHSC for review and resolution.

90.4.4 In cases where the JHSC cannot resolve issues arising from 2 or 3 above, the Ministry of Labour Inspector shall be called in for resolution.

90.5 Training/Certification

90.5.1 The Society Joint Health and Safety Working Committee shall fully participate in the development of a specialized training program for all members of the Joint Health and Safety Committees.

90.5.2 The Society Joint Health and Safety Working Committee shall fully participate in the development, putting in place, and administration of testing and re-testing standards for all members of the JHSC's.

90.5.3 The Society Joint Health and Safety Working Committee shall fully participate in the establishment of a specific Training/Certification program for members of the JHSC's.

90.5.4 The Society Joint Health and Safety Working Committee shall fully participate in the development, implementation and administration of testing and re-testing standards for accrediting JHSC members into the Certification program. Such standards shall not be less than those established by the regulatory agencies or deemed to be equivalent to the intent of the regulatory standards.

90.6 Responsibility and Accountability

There shall be a shared responsibility and accountability by the Society and Management for the actions of their Certified members of the JHSC's.

90.7 Compensation and Discipline

It is understood that employees directly or indirectly affected by the application of this Agreement will not suffer any loss of wages or disciplinary action.

90.8 Decertification

Should a Certified member fail to act in good faith, the Society Joint Health and Safety Working Committee shall review the representative's action and make appropriate decisions.

Where there is disagreement regarding the action of the Certified member, the issue shall be taken to Issues Team for resolution.

90.9 Assessment

The Joint Working Committee on Health and Safety shall be responsible for assessing the effectiveness of this Agreement from time to time.

91 JOINT HEALTH AND SAFETY COMMITTEES

91.1 Hydro One will establish a Joint Policy Committee in which Society representatives are able to address the health and safety concerns of employees with Management of various levels depending on needs where jointly agreed.

91.2 All Society-represented employees are entitled to representation on joint health and safety committees and to associated training.

91.3 There are to be three levels of representation:

- Hydro One/Society level
- Corporate Health and Safety /Society working committee level (based on the attached Terms of Reference, agreed to on September 27, 1989 by the parties).
- Local workplace level health and safety committees

Terms of Reference - September 27, 1989
Joint Working Committee on Health and Safety

1.0 Goal

Provide recommendations to assist the Health and Safety Division in the development, implementation and evaluation of Hydro One employee health and safety policy and programs.

2.0 Personnel

Manager, Programming Department, Health and Safety Division and other Management staff as deemed necessary from time to time.

Chairperson of Society Health and Safety Committee and other Society members or a staff advisor to a maximum of five.

The Chair will rotate between the Manager of Programming Department and Chair of the Society Health and Safety Committee.

3.0 Function

Participate in the identification and resolution of problems and issues of Hydro One significance in employee health and safety policy and practice.

Participate in the development, promotion and implementation of Hydro One health and safety programs.

The Committee will meet quarterly or as mutually agreed.

Hydro One will pay the expenses related to jointly agreed projects undertaken by or on behalf of the Joint Working Committee on Health and Safety.

91.4 Hydro One agrees to consult with the Society regarding new health and safety policies and procedures and regarding changes to existing health and safety policies or procedures except where provided for by the legislation itself. The Society will be given a reasonable amount of time to comment prior to implementation.

92 PROBLEM SOLVING COMMITEE

92.1 ***A Problem Solving Committee shall be established and constituted of the Hydro One Operations Committee and the Society VP and Unit Directors. The Problem Solving Committee shall meet quarterly.***

92.2 ***The Problem Solving Committee Oversight Committee shall consist of the President and CEO of Hydro One and the President of the Society and shall meet bi-annually. The Oversight Committee may request the assistance of Kevin Whitaker, or a mutually agreed alternative, as required.***

92.3 Negotiations between Hydro One and the Society shall take place through a body to which each party will appoint an equal number of representatives. Negotiations shall be conducted in good faith and both parties shall make every reasonable effort to reach agreement on matters of mutual interest as expeditiously as possible.

93 PUBLICATION OF COLLECTIVE AGREEMENT

All Society-represented staff should have personal access to a copy of the Collective Agreement. The preferred method is to provide access to this Agreement via an electronic basis. Where there is no electronic access the document could be distributed via disc.

Hydro One agrees to print sufficient copies for distribution to all elected Society representatives and to those employees without access to computer technology. The cost of printing the copies

that are required (to be determined by joint agreement) will be shared on the following basis: 75% (Hydro One); 25% (Society).

94 USE OF HYDRO ONE COMPUTER FACILITIES

94.1 The Society may make use of any of the services provided by information technology organizations to Hydro One line units.

94.2 The Society will be treated identically to Hydro One line with respect to service standards, procedures and support.

94.3 The price charged for the service will be the published rates of the Computer Centre plus the charge for administration, referred to as General Overhead which may change.

94.4 Information regarding these services, e.g., technical support, manuals, billing structure, training, etc, may be obtained from information technology organizations.

94.5 The Society will seek approval from the appropriate authorities prior to accessing or attempting to access any line units application programs or data. Any infringement of this condition by a Society member will be grounds for cancellation of this Article.

94.6 The services provided under this Article are to be used only for the purposes of assisting in the conduct of normal Society business and for provisions of service to its members.

94.7 Society data and programs may be protected from access by others by taking advantage of existing password mechanisms. It is the Society's responsibility to make arrangements to utilize such mechanisms.

95 NOTE TO PART XV - APPENDICES

Hydro One and the Society have not amended all the Appendices in Part XV to reflect the separate collective agreement status of Hydro One. In particular, the Appendices dealing with the Voluntary Recognition Agreement and subsequent amendments are historic documents and, therefore, references to “Ontario Hydro” have been maintained. It is agreed, however, that the commitments, terms and conditions in these Appendices shall apply to Hydro One in the same manner as they were applied to Ontario Hydro, to the extent that they are applicable to Hydro One.

PART XV - APPENDICES

Appendix I - Re: Utilization and Advancement of Professional Engineers and Scientists

Ontario Hydro and the Society agree the following principles will govern the utilization and advancement of professional engineers and scientists in Ontario Hydro.

1.0 The terms "professional engineers" and "scientists" shall include the employees' categories identified in Attachment A.

2.0 The MP2/FMP12 level of work shall normally be considered as a developmental stage for professional engineers and scientists performing engineering or scientific work.

3.0 The MP4/FMP14 level of work shall be considered as the "normal expectancy" level for fully qualified and competent engineers, or scientists in Ontario Hydro. MP3/FMP13 may continue to be a "journeyperson" level for engineers and scientists in some areas of activity.

4.0 Every effort should be made to provide professional engineers and scientists with an opportunity for advancement to MP4/FMP14, when they are capable of performing work at this level and such work is available.

5.0 Where an individual has demonstrated the willingness and capability to advance, and where advancement is impeded by lack of opportunity in the work area, every effort should be made to assist the individual in career advancement. This could include specific action steps such as training, job transfers, and rotations which will provide greater promotional opportunity.

6.0 Greater emphasis is required on the screening of professional staff at an early stage in their careers for both their potential capability to perform work at the MP4/FMP14 level and their suitability for further employment in Ontario Hydro.

(signed by W.G. Morison for Management and F.R. Greenholtz for the Society, February 27, 1984)

ATTACHMENT A

UTILIZATION AND ADVANCEMENT OF PROFESSIONAL ENGINEERS AND SCIENTISTS

Professional Engineers

Incumbents of jobs with 600000 or 860000 occupation codes who are:

a) Licensed to practice engineering by the Association of Professional Engineers of Ontario (APEO)

or

b) University graduates in one of the following engineering disciplines:

Aeronautical Engineering (Aero Space, etc.)	Engineering General
Agricultural Engineering	Engineering Science (Physics)
Chemical Engineering	Geological Engineering
Civil Engineering	Mechanical Engineering
Electrical Engineering	Mining Engineering
Electrical Engineering	Metallurgy & Material Science
Electronics Engineering	Nuclear Engineering
Engineering Business (Industrial)	Water Resources Engineering

Scientists

Incumbents of jobs with 600000 or 860000 occupation codes who are university graduates in one of the Natural Sciences, the Applied Sciences, Mathematics or Computer Science and who are not classified as professional engineers.

Appendix II - Re: Input To Association Of Professional Engineers Of The Province Of Ontario (APEO) Salary Survey

It is agreed that the method of input to the APEO Salary Survey of Employers and the analysis and use of the survey shall be in accordance with the following.

1.0 Data Input

1.1 The salary rates input to the survey shall be the rates paid for normally scheduled hours of work.

1.2 Such salaries shall be input for all Ontario Hydro engineers at Bachelor and/or post-graduate levels in engineering disciplines, who are engaged in engineering or scientific work (incumbents of M&P 600000 series jobs and of FM&P 860000 series jobs, who are represented by the Society), including engineering trainees who are registered (or eligible for registration) by the APEO.

2.0 Method of Input

2.1 Level A

Engineers whose Bachelor graduation occurred during the current or two previous calendar years, who are not incumbents of jobs classified as MP4 and FMP14 or higher.

2.2 Level B

i) Engineers whose Bachelor graduation occurred during the third, fourth or fifth calendar year prior to the current year, who are not incumbents of jobs classified as MP4 or FMP14 or higher.

ii) Engineers in jobs classified as MP1 and FMP11 who have sufficient years of experience to exempt them from eligibility for input to Level A.

2.3 Level C

Engineers in jobs classified as MP2, MP3, FMP12 or FMP13 who have sufficient years of experience to exempt them from the requirement to be input to Levels A or B.

2.4 Level D

Engineers in jobs classified as MP4, MP5, FMP14, FMP15.

2.5 Level E

Engineers in jobs classified as MP6, FMP16.

3.0 Annual Relative Standing

Ontario Hydro data will be excluded from the APEO survey data when making comparisons of Ontario Hydro's position relative to the community.

(signed by J.R. O'Connor for Management and B.A. Green for the Society, November 29, 1984 - revised in 1992/1994 Collective Agreement)

Appendix III - Re: Amendment to the Voluntary Recognition Agreement (VRA)

In light of major changes that have occurred since the Voluntary Recognition Agreement (VRA) came into effect on January 14, 1992, including significant Corporate restructuring, the parties' agreement to conduct a joint internal relativity project, and the need to clarify the Society's historical jurisdiction, the Society and Ontario Hydro agree to replace Sections 1.0 and 2.0 of the VRA with Article 2 of their Collective Agreement as amended by the Framework Agreement dated October 4, 1994.

The parties further confirm that the terms of the VRA as amended in the Collective Agreement remain applicable in all respects, including the agreed upon dispute resolution processes, to all provincially and federally regulated employees, subject only to previously agreed amendments and this amendment.

As a result of renewal negotiations for the 1999-2000 Collective Agreement, the parties agreed to extend Section 9.0 of the VRA to the expiry of the Collective Agreement in operation on January 1, 2005.

As a result of renewal negotiations for the 2007-2013 Collective Agreement, the parties agreed to amend Section 1.0 of the VRA effective July 1, 2007 to delete the provision excluding persons on the basis that they are incumbents in jobs rated 335 points or more under the Plan A Job Evaluation Manual and replace it with the following:

New Exclusion Criterion:

Strategic Business Decisions

1. ***Responsibility for making significant decisions that will have a material impact on the Company's business and/or staffing (what work gets accomplished, how much is done, when it is done and by whom)***

2. ***Responsibility for making significant business/strategy decisions that will have a material impact on how the Company's business is to be run***

3. ***Items 1 and 2 above also apply to work done by consultants and service providers***

4. ***Regular knowledge of high level confidential Hydro One information prior to its disclosure. No person shall be excluded simply as a consequence of preparing, analyzing or making recommendations with respect to the information***

Represent the Company at External Forums

5. ***Responsibility for being a principal presenter at OEB hearings. No person shall be excluded simply as a consequence of being asked to testify as an ad hoc witness***

6. ***Responsibility for deciding what substantive positions will be taken at the OEB***

7. ***Company spokesperson in matters that affect Labour Relations***

Appendix IV Re: Article 2 - Recognition Clause

Hydro One and the Society confirm the following understanding with respect to their agreement to amend Article 2 ("Recognition Clause") of their Collective Agreement:

1. The parties agree that the Voluntary Recognition Agreement (Attachment A), subsequent amendments to the VRA and correspondence between the parties concerning jurisdictional matters will be admissible in the event of any future interpretation disputes concerning the Society's recognition clause.

2. The parties agree that the intent of these amendments is to clarify the Society's historic jurisdiction as the exclusive bargaining representative for the broad mix of professional and supervisory employees that comprise the M&P/FM&P and TMS/TS/OSS/SEI salary classifications on salary schedules 01, 02, 03, 04, 05, 06, 07, 08, 09, 13 and 18 except where such persons are performing managerial functions or are employed in a confidential capacity. As such, these amendments constitute a reconfirmation by Ontario Hydro of the commitments made by D.B. MacCarthy regarding the Society's jurisdiction in his April 18, 1994 letter to P.T. Suchanek, Registrar of the Canadian Labour Relations Board.

3. The Society acknowledges that Ontario Hydro has consented to the deletion of the following subparagraphs from the bargaining unit description on the basis of the assurance of the Society contained in paragraph 4 below:

   - those persons included on the Executive Salary Roll and above;
   - employees whose full-time duties are security work;
   - employees in the Executive Office;
   - employees in the Office of the General Counsel and Secretary including the Law Division except Corporate Official Records Analysts, Corporate Archivists and Corporate Records Centre Supervisors.

4. The Society assures Ontario Hydro that this agreement, to delete the sub-paragraphs contained in paragraph 3 above, does not extend the previously agreed upon jurisdiction of the Society, except upon consent of the parties, beyond that jurisdiction identified in the Voluntary Recognition Agreement. However, should jurisdictional claims be made by any other bargaining agent for the classifications referred to in paragraph 3 above, the Society may assert a parallel or related claim.

5. The parties acknowledge that there are thirteen jurisdictional grievances filed by the Society pending resolution (listed in Addendum A) and that these amendments are not intended to prejudice the outcome of these disputes.

6. The parties acknowledge that the definition "associated employees" in Subsection 2.3.2 includes, but is not limited to, positions listed below, and other similar positions created in the future.

Occupation Code	Job Title	Salary Schedule	Salary Grade
748042	Vault Officer	01	01
748836	Recruitment and Training Officer	01	01
739055	Organization and Systems Analyst	01	01
748105	Recruitment and Training Officer	01	01
752215	International Project Administrator	01	01
741051	Co-ordinator - Area Office Practices	01	02
719010	LAN Administrator	01	02
741050	Co-ordinator - Customer Service Practices	01	02
748252	Assistant Training Officer	01	02
734075	Business Systems Analyst	01	02
753063	Trade Development Officer	01	02
741845	Transportation Field Co-ordinator	01	02
753847	Material Systems Officer	01	02
734080	Information Systems Support Analyst	01	02
739008	Regional Office LAN Administrator	01	02
623013	Materials and Procurement Services Officer	01	02
730844	Facilities and Services Analyst	01	02
759090	Team Leader - Transportation Planning	01	02
753860	Administrative Services Officer	01	02
752046	Business Planning Co-ordinator	01	02
729051	Transportation of Dangerous Goods Specialist	01	02
719009	LAN Administrator	01	02
734078	Information Systems Specialist	01	02
734079	Office Systems Analyst	01	02
748867	Business Systems and Training Officer	01	02
748850	Emergency Preparedness Officer	01	02
741817	Service Co-ordinator - Kipling Complex	01	03
741072	Co-ordinator - Lines Work Methods	01	03
729056	Building Maintenance Officer	01	03
748865	Field Training Officer	01	03
753403	Senior Employment Officer – Nuclear Operations	01	03
710007	Digital Mapping Co-ordinator	01	03
759026	Training Officer	01	03
741828	Operating & Maintenance Projects Co-ordinator	01	03
741827	Service Co-ordinator	01	03
729043	Building & Facilities Disposal Officer	01	04
741841	Production Co-ordinator	01	04
729014	Maintenance Specialist – Mechanical	01	04

(signed by B.R. Story and C.B. Cragg - October 4, 1994)

ATTACHMENT A

VOLUNTARY RECOGNITION AGREEMENT

This Agreement including the accompanying Framework Agreement, included as Schedule A, resolves all issues raised during proceedings at the Ontario Labour Relations Board, regarding the Society's Applications for Certification (dated November 5,1986 and October 2, 1990) or otherwise arising as to the status of the Master Agreement as a Collective Agreement before such Board or the Courts. This Voluntary Recognition Agreement is entered pursuant to the Ontario Labour Relations Act and is acknowledged to be enforceable pursuant to that Act. The parties agree that the Memorandum of Agreement, June 19, 1991, known as the Letter of Understanding, is no longer in force or effect.

1.0 Recognition Clause

Pursuant to section 16(3) of the Ontario Labour Relations Act, Ontario Hydro agrees to recognize the Society as the exclusive bargaining agent for the "employees" defined as follows:

"All employees employed by Ontario Hydro in the Province of Ontario as supervisors, professional engineers, engineers-in-training, scientists, professional, administrative and associated employees save and except:

a) those persons included on the Executive Salary Roll and above;

b) employees in bargaining units for which any trade union holds bargaining rights as of the signing of this Agreement;

c) those persons who perform managerial functions as distinct from supervisory functions. An employee is performing managerial functions if:

   i) she/he performs managerial functions such as hiring, promotion, performance increase, discharge, etc. over other employees in the bargaining unit and;

      she/he is required to spend the majority of his/her time performing managerial duties and;

      she/he supervises at least seven (7) employees (directly or indirectly) on a regular and continuous basis.

   ii) she/he supervises employees who are excluded from the Society under (c) (i), (d), (e) or (f);

d) employees who are primarily employed in a confidential capacity affecting the terms and conditions of employment for Ontario Hydro staff;

e) employees whose full-time duties are security work;

f) employees who are members of a profession entitled to practice in Ontario and who are employed in a professional capacity where the Ontario Labour Relations Act excludes such persons from coming under the Act by virtue of their profession."

2.0 Clarity Notes

For the purposes of clarity, the bargaining unit set out above:

2.1 Includes**:**

a) All regular, probationary, part-time and temporary employees whose functions are included in the classifications paid from Salary Schedules 01, 02, 04, 05, 07, 08, 09, and 18; and

b) All employees paid from Salary Schedule 13 (Nurses), Salary Schedule 03 (System Control Operators) and Salary Schedule 06 (Helicopter Operator Supervisors), except employees excluded by virtue of 1.0 of this agreement, will be entitled to vote to determine if they wish to be represented by the Society. If the majority of eligible employees voting on any schedule vote in favour of being represented by the Society, eligible employees on that schedule will be represented by the Society. The vote will be conducted by the Society and Ontario Hydro by secret ballot.

2.2 Excludes employees in accordance with 1.0 (c) above as follows:

a) M&P (Schedule 01) - in salary classification MP4 (or higher) rated by the Plan A Point System of Job Evaluation January 1988 (“Plan A”), or its equivalent, carrying “Nature of Supervision” Degree 4 (or higher) or its equivalent and “Numbers Supervised” Degree 3 (or higher) or its equivalent who normally supervise other Society represented employees.

b) FM&P (Schedule 02) - who normally supervise other FM&P employees and who normally supervise at least seven (7) employees directly or indirectly.

c) TMS and TS (Schedules 08 and 07) - who normally supervise other TMS or TS positions and who normally supervise at least seven (7) employees directly or indirectly.

d) OSS (Schedule 05) - who normally supervise other OSS positions and who normally supervise at least seven (7) employees directly or indirectly.

e) Supervising Electrical Inspectors (Schedule 09) - who normally supervise other SEI positions and who normally supervise at least seven (7) employees directly or indirectly.

f) Area Managers.

2.3 Excludes employees in accordance with 1.0 (d) above as follows:

a) Employees paid from Salary Schedule 01 rated under Plan A as having “Staff Responsibility” Degree 4 (or higher) or its equivalent and MP6 employees as having “Staff Responsibility” Degree 3 (or higher) or its equivalent.

b) Employees in the Executive Office.

c) Employees in the Office of the General Counsel and Secretary including the Law Division except Corporate Official Records Analysts.

d) Positions currently listed in Agreement RS-1 dated October 11, 1990.

e) Human Resource trainee positions on Schedule 04.

3.0 The grievance and arbitration procedure may be used to challenge any unreasonable, arbitrary or bad faith action taken by Ontario Hydro which results in the exclusion of any employee or position from the bargaining unit.

4.0 Arbitration

4.1 Future contract negotiations disputes shall be resolved by binding arbitration in accordance with Section 38 of the Ontario Labour Relations Act and the negotiating process for resolving such disputes shall be set out in full in the collective agreement.

The dispute resolution process shall be mediation-arbitration using the same individual as both the mediator and arbitrator.

The mediator-arbitrator shall consider the following issues as relevant to the determination of the award on monetary issues:

a) a balanced assessment of internal relativities, general economic conditions, external relativities;

b) Ontario Hydro's need to retain, motivate and recruit qualified staff;

c) the cost of changes and their impact on total compensation;

d) the financial soundness of Ontario Hydro and its ability to pay.

A mediator-arbitrator shall have the power to settle or decide such matters as are referred to mediation-arbitration in any way he/she deems fair and reasonable based on the evidence presented by representatives of Ontario Hydro or the Society in light of the criteria in items (a) to (d) and his/her decision shall be final and binding.

4.2 The parties will hereby undertake to develop appropriate internal comparisons, an external community for comparison and criteria for measuring total compensation by no later than September 1, 1992 and failing such agreement either party may refer the outstanding differences to an arbitrator for a final and binding decision. This undertaking and its referral to arbitration shall be enforceable under the Arbitrations Act.

5.0 No Strike/No Lockout

The collective agreement will recognize that the Society, employees within the scope of the bargaining unit, and the Corporation are pledged to the effective and efficient operation of Ontario Hydro and that they pledge themselves, individually and collectively, to refrain from taking part in strikes, lockouts or sympathy strikes and other interference with work or production as long as the terms and conditions in section 4.0 continue.

6.0 Supervisory Employees

For the purposes of section 9.0, the parties agree that Supervisory positions are those that are not excluded under section 1.0 above and that satisfy the following criteria:

a) Employees on Salary Schedule 01 who have under Plan A "Nature of Supervision" Degree 3 (or higher) or its equivalent;

b) Employees on Schedules 07, 08, 02, 05 and 09 on condition they normally supervise other employees.

7.0 Enforcement

The primary method of enforcement of this agreement shall be pursuant to the grievance and arbitration provision of the parties' collective agreement. However, should the collective agreement not be in operation or applicable to the dispute, either party shall have the right to refer to final and binding arbitration any differences between the parties arising from the interpretation, application, administration or alleged violation of this Voluntary Recognition Agreement, including any question as to whether a matter is arbitral.

The arbitrator shall have all of the powers of an arbitrator pursuant to section 44 of the Ontario Labour Relations Act or the Arbitrations Act as the case may be.

Subject to the conditions of this Agreement, if a mediator or arbitrator is not appointed within 30 days of a matter being referred to mediation and/or arbitration, either the Society or Ontario Hydro shall have the right to refer the matter to the Minister of Labour or the Chief Justice of the Ontario Court of Justice and the Minister or Chief Justice shall appoint a mediator and/or arbitrator.

8.0 Selection of Mediators and Arbitrators

Mediators and arbitrators shall be selected from a list of mutually acceptable persons which are to be set out in the collective agreement and the costs of using them will be shared equally by Ontario Hydro and the Society.

9.0 Duration

The agreement shall come into effect on the date of ratification and shall remain in effect thereafter except for section 4.0 and 5.0 which may be terminated by written notice by either party not less than six months prior to the expiry of the collective agreement in operation on January 1, 2001 or any subsequent collective agreement. In the event that the Society provides notice of termination of sections 4.0 and 5.0, Ontario Hydro may require that the supervisors defined in this agreement form a separate bargaining unit for which the Society shall be recognized as the bargaining agent and for which there shall be a separate collective agreement. In addition, the Society shall continue to be recognized as the bargaining agent for non-supervisory staff defined in this Voluntary Recognition Agreement. Disputes on the identification of supervisors shall be submitted to a mutually-acceptable arbitrator for settlement. If the parties fail to agree to appoint an arbitrator, either party may refer the matter to the Minister of Labour or the Chief Justice who shall appoint an arbitrator. If Ontario Hydro provides notice of termination of sections 4.0 and 5.0, it shall continue to recognize the Society as representing all employees in one bargaining unit per this Voluntary Recognition Agreement and ensuing collective agreements.

In the event that either party desires to amend this agreement on or after January 1, 2001, it must notify the other party in writing not less than six months prior to the expiry of the collective agreement in effect on January 1, 2001 or thereafter six months prior to the expiration of any subsequent collective agreement. In such circumstances the parties will have the right, if either party so chooses, to appoint a mutually-agreeable mediator for the purpose of reaching a settlement of the issues and where there is mutual agreement the mediator shall arbitrate outstanding matters in dispute.

Notwithstanding the above, the parties may mutually agree to amend this agreement at any time.

10.0 Federal Jurisdiction

In the event that nuclear workers are found to be covered under the Canada Labour Code and the Society applies to represent these employees, Ontario Hydro will not oppose certification for any employee represented by the Society under this agreement.

11.0 Ratification

The Society Executive recommends acceptance of this agreement to its members and the agreement shall become effective upon the date of ratification. Persons eligible to vote will include all employees who will be represented by the Society under this Voluntary Recognition Agreement. The vote will be conducted by secret ballot.

12.0 Effective upon the date of ratification or as soon as reasonably practical, Ontario Hydro undertakes to make available to those employees excluded under 1.0(c) and 1.0(d) an enhanced Redress Procedure for Management Function staff, which includes the right to representation of their choice, and as a final step in the process, to binding arbitration by an external third party acceptable to the employee and to Ontario Hydro.

13.0 Until the terms of a first collective agreement are reached, Ontario Hydro agrees to adhere to the terms and conditions of employment found in the existing Master Agreement, Subsidiary Agreements and Memoranda of Understanding with respect to the agreed upon bargaining unit. Applicable sections of the Manual of Human Resources Policies and Procedures will act as a supplement to the aforementioned joint documents.

14.0 Effective the first month following the date of ratification, Ontario Hydro shall deduct dues from each employee in the unit and remit this amount to the Society forthwith.

This agreement was arrived at with the assistance of and under the auspices of George Adams as mediator.

[signed by C. Cragg for W. Hirst (Society) and W.S. O'Neill (Ontario Hydro), November 13, 1991.]

Schedule A

Memorandum of Understanding for a Framework Agreement

Ontario Hydro and the Society of Ontario Hydro Professional and Administrative Employees agree as part of the Voluntary Recognition Agreement to be found by the following principles and practices and agree that the negotiation and operation of all collective agreements ensuing from the Voluntary Recognition Agreement will be in accordance with this memorandum unless otherwise mutually agreed.

1.0 Society Interests vs. Corporate Interests

The object of this agreement is to promote harmonious relations between employer and employees consistent with the preamble of the Ontario Labour Relations Act and in recognition of the need for the successful accomplishment of the public purposes for which Ontario Hydro has been established as set forth in the Power Corporation Act and enunciated in the Corporate Direction.

The objective of the parties is to facilitate the peaceful adjustment of salaries and benefits, working conditions, issues of fair treatment, all disputes and grievances, and to prevent inefficiencies and avoidable expenses and to reduce unnecessary delays.

Ontario Hydro's mission is to contribute to the enhancement of the quality of life of the people of Ontario by serving their energy needs. The Society's mission is to strive to ensure the best rewards, career opportunities and working conditions for its members. The Society recognizes a responsibility for providing an essential service to the people of Ontario and in working towards the continued viability and continuity of Ontario Hydro as the provincial electrical utility. Both parties recognize the fundamental importance of service to the Corporation's customers.

The parties recognize that situations may arise where their missions, objectives, or actions come into conflict. These conflicts may impact on the bargaining unit and particularly on supervisory employees represented by the Society. The parties agree that supervisors will be able to participate fully as members and perform supervisory responsibilities without fear of reprisal or recrimination by either party.

Provided nothing in this Framework Agreement is intended to interfere with the exercise of lawful economic sanctions by any member of the bargaining unit or bargaining units as the case may be or by the Society itself should either party to the agreement elect to terminate sections 4.0 and 5.0 of the Voluntary Recognition Agreement.

2.0 Collective Agreement

The collective agreement between the parties will include sections 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 8.0 of the Voluntary Recognition Agreement, in addition to section 1.0 of Schedule A and the principles set out in sections 3.0 to 7.0 as noted below.

3.0 Supervisory Employees - Code of Ethics

Ontario Hydro agrees to include supervisory employees in the bargaining unit on the condition that the parties recognize that supervisory employees will continue to exercise key functions in the control and operation of Ontario Hydro. As members of Ontario

Hydro's managerial staff, supervisors use judgment to express and make operative the decisions of Management. They are responsible for fostering a healthy work environment. The parties recognize the responsibility of supervisors to discharge their supervisory duties in good faith. The Society and Ontario Hydro will identify, minimize and/or avoid the conflicts/perceived conflicts of interest that may arise concerning the relationship between supervisors, the Society and Ontario Hydro.

It is recognized that supervisory employees may be disciplined for failure to act in good faith as a representative of Management and fulfilling their responsibilities including abuse of supervisory position and breach of trust.

3.1 Grievance Procedure

The collective agreement will have a grievance procedure which will recognize:

- access by either party for disputes arising from the administration of the Collective Agreement and from the application of section 1.0. If such disputes proceed to arbitration, the arbitrator will consider the principles contained in section 1.0;

- the role of supervisors in resolving disputes before they reach the formal procedure;

- that the Society agrees not to discriminate against supervisors who represent Management in Society grievances;

- that the Society will exclude supervisors directly involved in a particular grievance from the decisions on the referral of the grievance through the formal process;

- that supervisors will not act on behalf of the Society in matters associated with a particular grievance where the grievance has been lodged by another member(s) who reports to the particular supervisor.

4.0 Representation on Corporate Committees

The collective agreement will recognize the roles and responsibilities of appointees to committees and task forces, i.e., as a representative of Management on the one hand, and the Society, on the other. When an employee represented by the Society is appointed by Management, his/her responsibility is to Management. When he/she is appointed by the Society, his/her responsibility is to the Society. This role distinction should be made clear at the time of appointment. Notwithstanding the above, and in keeping with section 3.0, Management will endeavour to appoint its representatives having regard to the Society's interests in effective representation.

5.0 Selection of Supervisors

The collective agreement will incorporate the existing practices for selecting the "best qualified candidate" in filling supervisory positions.

6.0 Membership in the Society

The Society agrees to permit members to withdraw membership in the Society.

7.0 Dues Deduction (Rand Formula)

The collective agreement will provide for Society dues, as prescribed by the Constitution, or an equivalent amount, to be deducted monthly (or more frequently if agreed) by Ontario Hydro by compulsory payroll deductions from all Society-represented employees and to be forwarded to the Society on their behalf with a list of appropriate employee information.

The Society confirms it will respect the provision of section 47 of the Ontario Labour Relations Act with respect to bona fide religious convictions or beliefs.

(signed by C. Cragg for W. Hirst [Society] and W.S. O'Neill [Ontario Hydro], November 13, 1991)

Appendix V- Re: Peak Demand Hour Arrangements

The following are definitions and guidelines for the implementation of peak demand hour arrangements.

Definitions

Normal Work Week: For purposes of this Article, a normal work week will mean the total of the standard hours normally worked during a pay period, outside of the peak work load periods.

Normal Hours: Normal hours worked outside of a peak work load period (as per Article 70).

Peak Work Load Period(s): One or more periods during the year in which the expected magnitude or nature of the work to be performed reasonably requires employees to work more than their normal work week, and/or hours different from their normal hours. Peak work load periods may be the result of a need to minimize equipment downtime, or other factors which are expected to occur every year.

Peak Demand Workers: Employees who are likely required to work more than their normal work week, and/or hours different from their normal hours during peak work load periods, and less than their normal work week during other periods of the year.

Intent

a) Peak demand workers may be required to work normal hours, or scheduled hours on a work and/or shift schedule which are different from their normal hours, and which, in total, may exceed their normal work week during peak work load periods. Scheduled hours worked in excess of the normal work week will be "banked" and taken as time off (consistent with the conditions outlined in this Appendix), during periods of the year when the work load may not require all of the normal hours available.

b) Work and/or shift schedules, and all other administrative matters regarding the hours of work for peak demand workers will be determined within the business unit, subject to the conditions contained in this Appendix.

c) The design of work and/or shift schedules and other hours of work arrangements will give consideration of the requirement to perform work in the most effective, efficient and safe manner.

d) The design of work and/or shift schedules and other hours of work arrangement will give consideration of the need to maintain good working relationships within the affected group and the relativity to other employees not covered by this Appendix.

Conditions

a) The peak work load periods will be declared prior to the start of the year for the entire year. The declared peak work load periods for the year will not be less than four weeks' cumulative duration (or normal conditions for the employee will apply). The declared peak work load periods will not exceed 26 weeks of the year cumulative duration. For purposes of this Appendix, the year may be any designated fiscal year which will not be changed for the work group once established.

b) Peak demand workers may be assigned to normal hours, work and/or shift schedules that average more than the normal work week during the declared peak work load periods. Other articles in this collective agreement regarding shift work, hours of work, and standard hours do not apply during declared peak work load periods, except:

- Articles 60.3, 61.4, 62.2 and 62.3 regarding shift allowance for work schedules on weekends, and nights; and
- special conditions for 12 hour shifts as per Article 62.6.

c) Management will strive to provide at least seven days' notice of an assignment to a work or shift schedule that requires work outside of normal hours during the declared peak work load periods. However, any hours worked outside of normal hours without at least three days' notice will not be considered scheduled work for purposes of this Appendix.

d) Work performed outside of scheduled hours is overtime and will be compensated at the appropriate overtime rate(s).

e) During the declared peak work load periods, an amount equal to the number of scheduled hours worked each week in excess of the normal work week will be "banked". The banked time will be taken as time off at straight time during times of the year outside of the declared peak work load periods, subject to meeting work requirements. When possible, the time off will be scheduled by mutual agreement between the employee and Management. If work requirements have prevented an employee from taking his/her "banked" time off, the time remaining will be compensated as follows: for positive balances in the time bank remaining at the end of the year, the employee will receive payment at time and one-half for 50% of the hours and double time for the balance.

f) An employee's base wages will be maintained throughout the year, regardless of the number of scheduled hours worked per week during the declared peak work load periods, or hours taken off at straight time from the time balance "bank" during other periods of the year.

g) The design of work and/or shift schedules used during the declared peak work load periods will be flexible to meet work requirements and consistent with the limitations of the appropriate legislation. Specific rules to be adopted for the design of work and/or shift schedules for peak demand workers may include:

1. The length of a scheduled shift or extended work day cannot exceed 12 hours.
2. No more than 48 hours of work may be scheduled (i.e., exclusive of overtime) in a week.
3. The start of a scheduled shift or work period must be at least 24 hours following the start of the previous scheduled shift or work period.
4. At least eight hours of time off will be provided between work periods including overtime.
5. Although the content, preparation, costing and administration of work and/or shift schedules is the sole responsibility of the corporation, the preference of the majority of peak demand workers to be assigned in the affected work group will be considered in designing the work and/or shift schedule.
6. Every attempt will be made to assign employees from those in the appropriate work group, to a work and/or shift schedule under this Appendix, on a voluntary basis. However, in the absence of sufficient qualified volunteers, the corporation may assign specific individuals to perform the work.

Appendix VI - Guidelines for Applying Burkett Overtime Award

As a result of continuing questions concerning the Burkett overtime award, the Society and Ontario Hydro have agreed to issue these guidelines to assist local representatives in interpreting this award.

Employees found eligible for compensation under this award are entitled to receive compensation equivalent to PWU overtime premiums for all overtime worked, retroactive to January 1, 1993. This entitlement applies to all PWU overtime premiums, including double time Saturdays, double time for all work performed outside of their first four clock hours after normal quitting time Monday to Friday inclusive and minimum payments for emergency and scheduled overtime. It does not apply to travel time outside of normal scheduled hours.

To determine compensation eligibility under this award:

First, determine which employees are eligible to receive the PWU equivalent overtime premium. A list of eligible employees should be developed locally using the statement of intent in Part A and the employee eligibility guidelines set out in Part B. Local Society representatives should be involved in developing the list of eligible employees to minimize the possibility of disputes.

Second, decide whether an employee deemed eligible in step one will be compensated with PWU equivalent overtime premiums on an on-going or on an assignment-by-assignment basis. This decision is Management's prerogative. If the decision is made to compensate on an assignment-by-assignment basis, the guidelines set out in the statement of intent in Part A and the guidelines in Parts C and D should be followed to determine when an eligible Society-represented employee qualifies to receive the applicable PWU equivalent overtime premium. Local Society representatives should be involved in the development of local adaptations of these guidelines to ensure fair and consistent employee treatment and to minimize disputes.

Part A - Intent of the Award

The intent of the award is to correct the internal "relativity rub" that arises when Society-represented staff are required to directly supervise or work beside PWU-represented employees performing overtime work in a field environment or facility while receiving less providential overtime provisions than these employees. It is not intended to address internal relativity problems other than those that specifically arise when members of both employee groups work overtime.

Part B - Conditions of Employee Eligibility

1. The following conditions must be satisfied before an employee is eligible to receive award compensation:

    a) an employee must work in a field environment/facility (="field condition");

    and

    b) he/she must directly supervise or work beside PWU-represented employees (="interface condition").

2. To meet the "field condition", an employee must be "directly involved in the operations, maintenance or construction of production, transmission, or distribution facilities".

3. "Head office" refer to non-production, non-transmission or non-distribution facilities and, as of January 1,1993, includes the following locations: 700 University, 393 University, Murray Street, College Park, Place Nouveau and the Atrium. When performing overtime work at these locations, employee do not meet the "field condition". Local Society and Management representatives should assess whether or not employees, when performing overtime work at other locations, meet the "field condition" on a case-by-case basis, by examining the nature of the employee's work in light of the statement of intent in Part A and the guidelines contained in this section. In the event of disagreements, the matter should be referred to the Issues Team.

4. Employees whose regular work headquarters are "field" locations (i.e., those *not* included under guideline #2 above) and who train PWU-represented staff meet the "field condition". Employees who satisfy this condition include those who work at the Orangeville C&D Centre and the Nuclear and Thermal training centres.

5. Employees whose overtime work at their regular work headquarters does not meet the "field condition" (e.g., head office staff) shall be deemed to meet this condition for overtime work performed at "field" locations when they directly supervise or work beside employees involved in the operation, maintenance or construction of production, transmission or distribution facilities (e.g., research, telecommunications or information systems work performed at stations).

6. Employees "work beside" PWU-represented staff if they work at the same time as PWU-represented staff on the same projects/task assignments and this is a normal feature of their work and necessary to carry out their job responsibilities (e.g., P&C Engineers). To determine employee eligibility in this regard, the nature of the Society-represented employee's job responsibilities, rather than the frequency of his or her actual contact with PWU-represented staff, should be the primary consideration.

Part C - Conditions That Trigger Award Compensation

(Management has the discretion to compensate employees who are deemed eligible under Part B above with the equivalent to PWU overtime premiums on an on-going or on an assignment-by-assignment basis. If Management chooses to compensate on an on-going basis, the sole condition that must be satisfied for award compensation to trigger is the eligible employee's performance of overtime work. If Management chooses to compensate on an assignment-by-assignment basis, then the guidelines below apply. NB. An individual guidelines does not stand alone: all conditions set out in this Part must be satisfied before an eligible employee qualifies for award compensation.)

1. Both the Society-represented employee and the PWU-represented employee whom he/she supervises or works beside must be on overtime. Example: if a Society-represented employee who normally works days Monday to Friday works on a Saturday with a PWU-represented employee who is working on his/her normal scheduled shift (and does not work beyond the scheduled hours), the Society-represented employee does not qualify for award compensation.

2. Award compensation applies to the period of time when the Society-represented employee is "rubbed" by an unfavourable overtime premium differential. Example: if a Society-represented employee who normally works days Monday to Friday works on a Saturday

from 7:00 am to 3:00 pm with a PWU-represented shift employee (for whom the Saturday is a scheduled work day) whose shift ends at 7:00 am but who continues to work (on overtime) until 3:00 pm, the Society-represented employee qualifies for double time from 11:00 am until 3:00 pm, i.e., when the PWU-represented employee received double time for overtime work.

3. The presence of a Society-represented employee for the overtime in question must be necessary for the work to progress (i.e., if the employee was not there, then the task could not proceed). In most cases, this condition is met if the other conditions set out in the Part are also satisfied.

4. A direct supervisory or "working beside" interface must exist between Society-represented and PWU-represented employees during the overtime in question. The mere presence of a PWU-represented employee on overtime at the same location and at the same time as a Society-represented employee is working overtime does not trigger the award. Example: if a number of eligible Society-represented supervisors work overtime at the same time as PWU-represented employee works overtime, only the supervisor to whom the PWU-represented employee reports during the overtime in question qualifies for award compensation.

Part D - Clarifications

1. Even if only one PWU-represented employee is on overtime for a particular assignment, and the other (PWU-represented) members of his/her crew or task group are not, assuming the other conditions are met, the Society-represented employee on overtime with him/her qualifies for award compensation.

2. Normal shift turnover work of less than 30 minutes does not qualify for coverage under this award, but rather is compensated in accordance with Article 62 ("Shift Turnover") in the Collective Agreement. Shift turnover work of 30 minutes of longer performed outside of normal working hours, however, as well as work other than shift turnover work an employee is required to perform prior to normal starting time are eligible for compensation under this award provided that: a) the employee directly supervises or works beside a PWU-represented employee; and b) both are on overtime; and c) an overtime premium rub exists.

(dated February 28, 1994)

Appendix VII - Default Units of Application

(See Article 64.10.1.5)

Divisions (Default)	Business Unit (Default)
Corporate Services	Corporate Services
Finance[1]	Finance
1. Asset Management 2. Hydro One Telecom	Asset Management
1. Lines 2. Forestry 3. Remotes 4. Customer Relations 5. Health, Safety and Environment	Customer Operations
1. Stations 2. Operating	Grid Operations
Engineering and Construction Services	Engineering and Construction Services
Corporate Communications[2]	Corporate Communications

[1]For clarification, also includes Society-represented Treasury classifications within Hydro One Inc.

[2] For clarification, also includes Society-represented Audit classifications within Hydro One Inc.

Appendix VIII - Side Letters
1999-2000 Negotiations

December 4, 1998

Mr. John Wilson, President
The Society of Ontario Hydro Professional and
Administrative Employees
525 University Avenue, Suite 630
Toronto, Ontario
M5G 2L3

Dear Mr. Wilson:

This will confirm certain understandings reached during collective bargaining, concerning the Pension Plan:

a) The employees represented by the Society constitute a separate class within the Ontario Hydro Pension Plan;

b) The committee established as a result of the Memorandum of Settlement for the 1997-1998 Collective Agreement shall continue to have access to reasonable pension plan and pension fund information, which shall include reasonable information related to the allocation and transfer of pension funds from the Ontario Hydro Financial Corporation Pension Plan to a successor pension plan as contemplated by S. 100 of the *Energy Competition Act*. Prior to its publication, the committee will review any brochure, which provides a summary of the pension plan and any specific provisions and entitlements of the Society pension class;

c) In the event of a division of the Ontario Hydro Pension Plan into two or more successor pension plans, the provisions of this letter are applicable in respect of each successor pension plan.

d) The employer confirms it remains responsible in respect of all rights and. benefits under Article 88 of the Collective Agreement.

Yours truly,

Steve Strome
Vice President, Labour Relations,
Compensation & Benefits

December 4, 1998

Mr. John Wilson
President
The Society of Ontario Hydro Professional and
Administrative Employees
525 University Avenue, Suite 630
Toronto, Ontario
M5G 2L3

Dear Mr. Wilson:

Hiring Hall Agreement

This letter will confirm the intent behind the Hiring Hall Agreement ("Appendix"), as previously communicated by Richard Sogawa.

During the negotiations the Management Team guarded against impacts on Society positions by ensuring that:

- The position of Sub-Foreperson aligned with the PWU UTS III position;
- The position of Foreperson aligned with the PWU UTS II position;
- The position of Senior Foreperson aligned with the PWU I position;
- PWU members acting as General Forepersons (those which are Society positions) can only do so for less than 3 months. After that time they must become Society dues paying members.

Yours truly,

Steve Strome
Vice President, Labour Relations,
Compensation & Benefits

PART XVI - LETTERS OF UNDERSTANDING

LETTER OF UNDERSTANDING

#1 Re: Society-Management Function/ ESR Boundary Issues

Intent

This LOU seeks to clarify employee rights during the operation of Article 64 related to positions at or near to the boundary between the Society and Management Function and provide an equitable means for employees to participate in competitions or a mix and match and follow their work where it has been transferred in or out of the Society's jurisdiction as a result of a reorganization. It is not intended to provide enhanced employment continuity rights in comparison to employees whose work has not changed jurisdiction.

The Problem

1. Position X is in the old organization and is in the Society. The duties change very little in the new organization but the change is sufficient to alter the jurisdiction of the position (e.g., the span of supervision and control is expanded and there will be more Society direct reports).

   Under the current rules the Society-represented employees currently in position X will not be permitted to compete for the position in the new organization during a mix and match.

2. There is a converse of 1. Position Y is currently excluded from the Society (i.e., MF or ESR). In the new organization the position is substantially the same but the jurisdiction of the job will move to the Society's jurisdiction. Once again, the change is minimal (e.g., there is reduced supervision and fewer or no Society direct reports).

3. Position Z is being formed in the new organization. It appears that it will be excluded/included but there is uncertainty about some factors (e.g., the number of direct reports). Therefore, the jurisdiction is uncertain and may eventually change.

   In this case, Management could make an arbitrary designation as excluded and the Society could challenge the designation later. If Management were to do this, then the Society-represented employees would not be able to compete for the position during a mix and match process. If the ultimate jurisdiction was within the Society, it could be that the selection process would have to be repeated.

   If Management were to designate the position as included in the Society then MF and ESR would be excluded from a mix and match process. A similar result could occur, if the jurisdiction were to subsequently change.

The Solution

A joint process for identifying positions X, Y and Z will be established as follows:

1. Management will identify the X, Y and Z positions and identify the employees who could be adversely affected. The Society will have approval/veto rights. (Note: This is intended to ensure X, Y and Z positions are legitimate and not intended to increase the opportunities for MF and ESR employees or reduce the opportunities for Society represented employees to exercise their seniority rights in the mix and match process.)

2. Category X - These positions will be filled in the MF mix and match or advertised Hydro One-wide using the normal vacancy process if not filled in the mix and match. Society represented employees identified under paragraph 1 will be treated equally to MF employees during a mix and match but may only be selected for Position X. If the position is advertised Hydro One-wide then the employee will be treated preferentially (i.e., be granted the same priority as surplus MF or ESR) for the specified position only. If the employee is not selected, then the employee can exercise all of his/her normal rights under Article 64. Where the employee is not selected for the position, the Society and the employee will be advised of the selection criteria and provided with reasons for non selection.

3. Category Y - These positions will be filled in the Society mix and match or advertised Hydro One-wide using the normal vacancy process if not filled in the mix and match. MF or ESR employees identified under paragraph 1 will be treated equally to Society employees during a mix and match but can only be selected providing they meet the senior qualified criteria for Position Y (i.e., such employees cannot be placed in any other position or displace Society-represented employees). If the position is advertised Hydro One-wide, then the employee will be treated preferentially (i.e., be granted the same priority as surplus Society) for the specified Y position only. If the employee is not selected, then the employee will be treated similarly to other MF/ESR staff in all other respects and have no additional rights.

4. Category Z - The parties will attempt to reach consensus on the jurisdiction of the position based on all available information (which will include an organization chart showing reporting relationships, selection criteria, and description of duties) prior to the selection process. Where consensus is not reached, Management will determine the jurisdiction and the Society will have the right to grieve.

5. The rights of the Society to grieve the jurisdiction of positions are unaffected by agreements reached under this process.

6. This Letter of Understanding expires March 31, 2005.

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, January 2003)

LETTER OF UNDERSTANDING

#2 Re: Expediting Redeployment Grievances and Arbitrations

The undersigned Parties agree as follows:

Complaint and Grievance Procedure

1. This agreement applies to grievances arising from the administration of Employment Continuity provisions of the Collective Agreement (Article 64.1.2), including the redeployment process in each Unit of Application, non-selection to positions in the mix and match and non-selection of employees entitled to priority placement in the search/notice period, and to decisions of JROTs.

2. Except as specified in this agreement, all provisions and practices established in relation to the Complaint and/Grievance/Arbitration Procedure apply to these grievances.

3. An employee's complaint must be submitted no later than 20 working days after completion of the Mix and Match, e.g. final approval of the JRPT Second Report or equivalent, the JROT decision, or the selection process that includes the decision he or she feels is unfair.

4. At Step 1 of the grievance procedure, the Society will submit complaints within the scope of this agreement to the relevant JRPT, JROT, and/or line management through Labour Relations Strategy Division. Management and The Society will be given 10 working days to attempt to resolve the grievance. The Society's position on the grievance is not prejudiced by that of Society members of JRPTs or JROTs.

5. Failing resolution at Step 1, The Society may advance the grievance to Step 2 of the grievance procedure within a further 10 working days.

6. The Parties will appoint regular and backup members to at least one Standing Redeployment Grievance Team, which will act as a Second Step Grievance Committee according to the terms of the Collective Agreement. The Committee will meet within ten days of a grievance being filed to attempt to resolve the grievance.

7. Failing resolution at Step 2, The Society may refer the grievance to arbitration within 20 working days. The Parties will designate and retain one arbitrator for grievances under this agreement.

Arbitration

8. The parties will review case by case the appropriateness of the following expedited arbitration process for grievances arising from the Expedited Redeployment Grievance process.

9. Mr. Joseph W. Samuels, or another arbitrator acceptable to the parties, will be retained as arbitrator for Employment Continuity grievances and he will be asked to deal with agreed-upon cases according to the terms of point 10, below. The arbitrator shall control the proceedings and retain jurisdiction to require further submissions of fact or argument as he deems necessary to determine the matter.

10. The expedited arbitration process will require the following:

- each grievance can be heard on one day, more than one grievance may be scheduled per day subject to the arbitrator's direction.

- the parties will prepare and sign a Joint Statement of the facts giving rise to the dispute, the facts in dispute (to the extent practicable), and any agreement as to the issues to be decided by the arbitrator. The Joint Statement must be developed prior to scheduling the hearing date.

- each party will present three copies of a Case Statement at the outset of the hearing. The Case Statement will state the issues to be determined, the facts on which the party relies, and a summary of the position of the party, supported by documentary exhibits and references to the Collective Agreement, jurisprudence or other authorities.

- witnesses may be called where the arbitrator rules that there is a material factual dispute and determines which parts of the evidence sought to be called appear relevant and material to the determination of the grievance. Witnesses will be under oath and subject to examination and cross-examination.

- oral argument will be limited to the position of the party set out in the Case Statement and the rebuttal of the other party's argument.

- the arbitrator will determine the matter as soon as possible, with a written decision issued to the parties within ten working days of the hearing date. Failure to meet a time limitation under this process will be deemed a technicality that does not invalidate the proceedings or the award.

11. Where the parties do not agree that a case is appropriate for this procedure, it will be dealt with by the same arbitrator as a conventional referral to arbitration.

(signed by B.R. Story and M. Germani - June 13, 1995)

LETTER OF UNDERSTANDING

#3 Re: First Line Management Supervisory Positions (TMS)

The parties agree to maintain commitments with respect to the jurisdiction of First Line Management Supervisory positions (TMS) as set out in the following Letters of Understanding, which are in other respects terminated as complete:

(a) Implementation of the Retail Systems Agreement (August 16, 1995);

(b) The Implementation of the Grid System Agreement on TMS (January 30, 1996);

(Signed by Steve Strome for Hydro One and John Cameron for the Society, March 2001).

LETTER OF UNDERSTANDING

#4 Re: Allocation of Society Staff to Ontario Hydro Successor Companies

All employees of Ontario Hydro on payroll at December 2, 1998 were allocated to the successor companies/bargaining units: OPGI Non-Nuclear, OPGI Nuclear, OHSC, IMO, ESA.

In certain cases, one successor company/bargaining unit ("service provider") continued to provide a service to one or more successor companies/bargaining units ("service recipient"), after the de-merger of Ontario Hydro (April 1, 1999). In these situations, management determined the number of FTEs required to provide the service, in consultation with the Society.

The employees allocated to positions providing the service shall be subject to the following:

1. If the service arrangement is later terminated, a number of employees equivalent to the number of FTEs identified above shall be allocated to the service recipient on the basis of seniority and preference, subject to work unit viability and reasonableness as in paragraph 2 above.

2. An employee who does not wish to resign employment with the service provider may remain with the company/bargaining unit subject to applicable redeployment provisions of the Society's Collective Agreement with that company/bargaining unit.

3. An employee who is offered a position under this subsection shall be entitled, as an employee of the service recipient, to relocation assistance on such terms as it exists in the collective agreement that applies to the receiving organization at the time of reallocation under this section.

(Signed by Steve Strome for Hydro One and John Cameron for the Society, March 2001).

LETTER OF UNDERSTANDING

#5 Reclassification of 40-Hour FLM Jobs That Primarily Supervise Non-Trades

Without prejudice and without creating a precedent regarding any other matter, the undersigned parties agree as follows:

1. This Letter of Understanding is intended to address, on an interim basis[1], the problem of appropriately evaluating First Line Manager (FLM) jobs with regularly scheduled hours of work of forty hours per week that exclusively or primarily[2] manage[3] non-tradespersons[4] under the Trades Management Supervisor (TMS) job evaluation plan.

2. This agreement applies to incumbents in the Customer Service FLM, the Distribution FLM - Remote Communities Shift Manager jobs and FLM – Field Technical Services ("included jobs"). The incumbents in these jobs as of the date of signing of this agreement are listed in Appendix A. The Society and Hydro One may mutually agree to extend the application of this Letter of Understanding to other jobs consistent with the intent expressed in paragraph 1.

3. The included jobs will be reclassified MP4 and paid off of salary schedule 01 effective the date of signing of this Letter of Understanding. While these jobs remain on salary schedule 01, incumbents will have all rights under Plan A until such time as the parties have agreed on a replacement job evaluation plan.

4. Employees shall be given "point to point" (i.e., as if placed at the same performance standing at the MP4 salary grade) retroactive compensation for the period they were incumbents in the jobs listed in paragraph 2 between January 1, 1999 and the date of signing of the Letter of Understanding.

5. The regularly scheduled hours of work per week for incumbents in included jobs shall be 40 hours.[5] For the purposes of these jobs only, salary schedule 01 applies to 40 hours per week. As a result, regularly scheduled hours between 35 and 40 hours per week will not be paid on a pro-rated basis.

6. Management shall expeditiously produce job documents for included jobs reflecting the changes agreed to in this Letter of Understanding. These documents shall provide management with the flexibility to assign incumbents to supervise different employee classifications (e.g., trades, clerical-technical, operators) as required. This provision is without prejudice to whether or not this reassignment creates an "adverse impact" within the meaning of Article 64 of the Collective Agreement.

7. Except as expressly modified by this Letter of Understanding, all provisions of the Collective Agreement shall continue to be applicable.

8. This Letter of Understanding shall remain in effect until the earlier of when the parties reach agreement of a new job evaluation plan (pursuant to Section 30.5 of the Collective Agreement) or December 31, 2000. If no agreement on a new job evaluation plan is reached by December 31, 2000, this Letter of Understanding shall continue in effect thereafter subject to termination by either party on 90 days' written notice.

1 "Interim" means until agreement is reached on a new job evaluation plan pursuant to Section 30.5 of the Collective Agreement.

2 "Primarily" means that normally more than 50% of time is spent managing non-tradespersons.

3 In this Letter of Understanding, "manage" is used in the context of the continuation of the jurisdictional commitments given in LOU #3.

4 "Tradespersons" means those recognized as such under the PWU-Hydro One Collective Agreement.

5 For the sake of clarity, Article 69 of the Collective Agreement ("Reduced Base Hours - 40 Hour Workers) applies to incumbents in these jobs.

(Signed by Steve Strome for Hydro One and John Wilson for the Society, July 14, 1999).

LETTER OF UNDERSTANDING

#6 Re: Process for Updating the Hydro One Drug Formulary to December 31, 2000

A. New Drugs Requiring a Prescription By Law

1. New "generic substitutes" for "name brand drugs" already listed on the Formulary will automatically be added to the Formulary as soon as they are approved for use in Canada.

2. New “strengths/dosages/forms” for drugs listed on the Formulary will automatically be added to the Formulary as soon as they are approved for use in Canada.

3. Out-of-country drugs with the same chemical base as drugs listed on the Formulary will be covered on the same basis as their Formulary equivalent.

4. The Chief Physician (or other employer-designated decision-maker) shall review all drugs that have been newly approved for use in Canada and advise the employer whether the drug is commonly and customarily recognized throughout the physician’s profession as appropriate in the treatment of a patient’s diagnosed sickness, injury or condition. The employer will make all reasonable efforts to make this determination as soon as possible after the drug has been approved for use in Canada. When a drug is deemed by the Chief Physician (or other employer-designated decision-maker) to meet this criteria, the drug shall be added to the Formulary.

5. Any drug on the Formulary that is no longer approved for use in Canada will automatically by deleted from the Formulary effective the date federal approval is withdrawn.

B. Over-The-Counter (OTC) Products

1. A new OTC product that falls into the following categories:

   (a) considered life sustaining;

   (b) different strengths or repackaging of life sustaining products already on the Formulary (same product/same company);

      (a) products already on the Formulary whose DINs may have changed as a result of a company takeover or reorganization shall be reviewed by the Chief Physician (or other employer-designated decision-maker). The Chief Physician (or other employer-designated decision-maker) will advise the employer whether: a) the OTC product is commonly and customarily recognized throughout the physician’s profession as appropriate in the treatment of a patient’s diagnosed sickness, injury or condition; and, b) Best Average Pricing (ie. Manufacturer’s wholesale price to the carrier) is available for the product. When the OTC product is deemed by the Chief Physician (or other employer-designated decision-maker) to meet this criteria, the product shall be added to the formulary.

      When Best Average Pricing information is not available for an OTC product, a paper claim will be reimbursed subject to determination by the

Chief Physician (or other) employer-designated decision maker) that there is no reasonable alternative product on the existing formulary and that the product is commonly and customarily recognized throughout the physician's profession as appropriate in the treatment of a patient's diagnosed sickness, injury or condition.

C. MISCELLANEOUS

1. The Corporation agrees to provide the following to The Society: a full and complete copy of the list of new drugs approved for use in Canada, as received from the Carrier (usually monthly); a list of (prescription and OTC) items added to the Formulary (including, where applicable, what country it applies to); and, upon written request from The Society, a written rationale for not including a drug on the formulary

2. Notification of the employer's decision to not add a drug to the Formulary, and any ensuing discussion with respect to the employer's rationale for not doing so:

    - Shall not be deemed to trigger timelines under Article 16 of the Collective Agreement;
    - Shall be without prejudice to The Society's position with respect to whether the drug meets the "reasonable and customary" standard; and,
    - Shall not prejudice The Society's entitlement, or the entitlement of any Society-represented employee(s), to grieve the employer's decision at a later date.

Where a timely grievance is successful, reimbursement for a denied claim shall be limited to the date of claim and retroactive additions to the Formulary shall be limited to the date of claim denial.

3. The Corporation agrees to provide The Society with an electronic copy of the complete Drug Formulary on a regular basis (calendar year).

4. The Corporation agrees to install, and update on a regular basis, the complete Drug Formulary on the Intranet.

(Signed by Steve Strome for Hydro One and John Cameron for the Society, July 11, 2000).

LETTER OF UNDERSTANDING

#7 Re: Hydro One Acquisitions

Without prejudice and without creating a precedent regarding any other matter, the undersigned agree as follows:

Hydro One Inc. is engaged in the acquisition of various Utility businesses. In most cases, Hydro One Inc. intends to integrate the work force of the Utility with the Hydro One Inc. work force. This Letter of Understanding will apply to all employees the Society represents after the acquisition of the Utility or part thereof.

1. Upon acquisition of the Utility, or part thereof, and where the Society represents the employees, Hydro One Inc. shall employ in the bargaining unit all employees of the Utility (the "employees") who would typically fit within the Society's recognition clause and shall intermingle such employees and the business of the Utility with its own employees and business. Hydro One Inc. shall provide the Society with Notification of the intent to transfer employees from the Utility to the Society's jurisdiction within Hydro One. A joint review of the employees' classifications shall be conducted to assess how they fit in the bargaining unit as soon as possible and before the transfer of these employees to Hydro One Inc.

2. Where employment or location protection has been provided as part of the sale agreement, these employees ("protected employees") shall have a protected period which is the period of time beginning when the protected employee commences employment with Hydro One Inc. and ending when the first of any of the following events occurs:

   a) The number of years of protection noted in the purchase agreement, to a maximum of 5 years, have elapsed since the date the protected employee commenced employment with Hydro One Inc.

   b) The protected employee voluntarily obtains another position within Hydro One Inc. in accordance with paragraph 5 below.

   c) The protected employee voluntarily retires or leaves the employ of Hydro One Inc.

   d) The protected employee voluntarily notifies Hydro One Inc. and the Society in writing that he/she wishes to terminate his/her protected period. No such notice shall be served during any period of time when Hydro One Inc. is redeploying other members of the bargaining unit pursuant to Article 64 of the Collective Agreement or any other negotiated redeployment arrangements.

3. During the protected period, the protected employees shall not be subject to permanent transfer, displacement or any part of Article 64 of the current Society Collective Agreement.

4. Employees shall carry forward their seniority and service credit from the Utility. Employees shall accrue seniority and service credit under the Collective Agreement for all purposes under the Collective Agreement.

5. Protected employees shall be eligible to apply for vacancies pursuant to Article 65 and shall be considered at selection priority level (f) for vacancies filled in accordance with Subsection 65.6.3 of the Collective Agreement. Protected employees shall not be given preference or priority consideration over other Society-represented employees in the filling of vacancies other than on the basis of the selection criteria set out in Article 65.

6. Any positions that are vacant prior to the acquisition and which Management intends to fill shall be advertised in accordance with the applicable section of Article 65 of the Collective Agreement.

7. No regular Society-represented employee shall be subject to Article 64 as a direct result of protected employees performing their work during the protected period.

8. Each acquisition, and a list of the associated protected employees, shall be documented on an attachment to this Letter of Agreement.

(Signed by Steve Strome for Hydro One and John Cameron for the Society, September 26, 2000).

LETTER OF UNDERSTANDING

#8 Re: Career Edge

Career Edge is a non-profit organization which connects university and college graduates with employers to develop marketable career-related skills to help the individual succeed in today's market place.

Society-represented employees may be utilized to mentor, train and to oversee training related assignments of Career Edge participants. It is expected that any investment of time by Society-represented employees in training and mentoring will be offset by the contributions of Career Edge participants.

Hydro One and the Society support the goal of the Career Edge program. To assist with its objectives, the parties agree to the following:

1. Participants may have an internship program of either 6, 9, 12 or 18 months.

2. Hydro One will advise the Society Office of each potential Career Edge opportunity that is within the Society's jurisdiction prior to finalizing an agreement with Career Edge.

3. Career Edge participants will not become employees of Hydro One.

4. Career Edge is the legal employer of the participants so all payroll administration and associated liabilities reside with Career Edge.

5. In order to make the internship as beneficial as possible, participants may be assigned training exercises consisting of work within the Society's jurisdiction.

6. Participants will not be represented by the Society.

7. There will be no adverse impact within the meaning of Articles 64 and/or 18 on a Society-represented employee or the Society, including no reduction in Society-represented positions (and associated hiring requirements) nor any displacement of Society-represented employees from their positions, as a result of the Career Edge program.

(Signed by Steve Strome for Hydro One and John Cameron for the Society, September 21, 2000)*.*

LETTER OF UNDERSTANDING

#9 Re: Implementation of Bi-Weekly Pay

Without prejudice and without creating a precedent regarding any other matter, pursuant to and in full completion of the commitment set out in Article 76, the undersigned parties agree to introduce bi-weekly pay for Society-represented employees in Hydro One on the following basis:

1. Bi-weekly pay will be introduced the later of January 2002 or when bi-weekly pay is implemented for PWU-represented staff in Hydro One.

2. In order to facilitate the transition to a bi-weekly pay cycle, Hydro One will advance the equivalent of one (1) week's net pay on the last weekly-pay pay date to all employees except those who elect not to receive this payment in accordance with paragraph 3 below.

3. Employees will be canvassed to determine whether they wish to receive the advancement described in paragraph 2 above. Failure to respond within two (2) weeks of receiving the option form will result in the employee deemed to wish to receive the advancement.

4. Employees who receive the advancement will be required to pay it back in equal instalments over six months. Such deductions will be taken directly off the employee's bi-weekly pay deposit. If an employee's net pay is insufficient to cover the required repayment amount, the employee will provide a cheque for the required amount payable to Hydro One.

5. In the event an employee terminates from Hydro One before repaying the advancement in full, any money owed will be deducted from outstanding monies owed to the employee.

6. No regular employee will be laid off as a direct result of moving to the bi-weekly pay cycle.

7. This agreement is conditional upon finalization of an agreement between the PWU and Hydro One on the implementation of bi-weekly pay for PWU-represented staff. In the event that Hydro One and the PWU agree to more provident terms than those contained in this agreement, the Society will have the choice of accepting this agreement or the PWU agreement.

(Signed by Steve Strome for Hydro One and John Cameron for the Society, October 30, 2001).

LETTER OF UNDERSTANDING

#10 Return of Employees from Inergi to Hydro One

Warehouse Operations

Without prejudice and without creating a precedent regarding this or any other matter, the undersigned parties agree to the following:

1. The purpose of this Letter of Understanding is to identify the employees who are returning from Inergi to Hydro One as a result of the repatriation of the warehouse operations.

2. The following employees will be transferred from Inergi to Hydro One:
   - T. Crawford (617911) – Warehouse Operations Supervisor
   - E. Kapitan (676774) – Warehouse Operations Supervisor
   - P. Martin (107681) – Warehouse Operations Supervisor

3. Effective the date of transfer, the above named employees shall transfer all accumulated service, vacation, seniority, sick leave and subject to the agreement of Inergi, pension credits as set out in Articles 4 and 64 for all Inergi and previous Hydro One service to Hydro One. For the sake of clarity, these employees shall be considered employees hired before January 1, 2002 for the purposes of Article 44.

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, April 7, 2004).

LETTER OF UNDERSTANDING

#11 Re: Biometrics Information at the Barrie HONOC

1. It is acknowledged that the introduction of and requirement to provide biometrics information is a condition of employment at the Barrie HONOC.

2. The collection and use and disclosure of the personal information provided will be restricted to the stated purpose of using biometric templates, which is to secure verification of the identity of individuals for access to the Barrie HONOC facility. The biometric template is not a fingerprint as used in law enforcement.

3. This LOU does not set a precedent for either party regarding security access requirements at other locations, currently or in the future.

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, July 9, 2004).

LETTER OF UNDERSTANDING

#12 Re: Work Refusal

It is jointly agreed that the following Letter of Understanding is an agreement between the parties and that any changes require joint agreement. The parties further agree that any detailed associated documents must meet the intent described within this Letter of Understanding.

1. ***Items within any detailed associated documents will clearly identify the rights and accountabilities of workers, supervisors and the employer under the Occupational Health and Safety Act, section 43.***

2. ***The parties agree that the work refusal process established within Hydro One will have a three stage process. The three stages will outline a worker concern process – stage 1, a worker refusal process – stage 2 (internal) and a worker refusal process – stage 3 (Ministry of Labour Involvement).***

3. ***The parties will ensure the process identifies the Union Representative's role.***

4. ***The process will ensure active participation of Senior Management and the Society Hydro One Local Vice-President, prior to contacting the Ministry of Labour.***

5. ***Either party may cancel this Letter of Understanding on 60 days' notice.***

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, April 18, 2005).

LETTER OF UNDERSTANDING

#13 Re: Incident Rating and Investigations

It is jointly agreed that the following Letter of Understanding is an agreement between the parties and that any changes require joint agreement. The parties further agree that any detailed associated documents must meet the intent described within this Letter of Understanding.

Incident Rating

1. ***The Society Representatives on the Joint Health and Safety Committee shall be provided with the opportunity for input into incident, Maximum Reasonable Potential for Harm (MRPH) ratings.***

2. ***Where the rating of an incident is in dispute, Line Management or Joint Health and Safety Committee members can seek timely resolution of the dispute through an adjudication by the Vice-President of Health, Safety and Environment.***

Incident Investigation

1. ***All incidents shall be investigated. Whenever a team is appointed to investigate an incident, the Society shall be invited to participate on investigation teams and shall select their representative.***

2. ***It is Hydro One's general intent to share all management corrective action plans with all employees and their unions as broadly as possible. However, it is acknowledged that in respect of certain incidents, such as those out of which significant personal or corporate liability may arise, this may not always be possible or desirable. In respect of such incidents, with a view to protecting the rights of employees of the Corporation and the Corporation itself and subject only to the Joint Health and Safety Committee and Society Representatives' right to review the written corrective action, Management reserves the right to not publish or distribute a copy of the written corrective action plan and, if the written corrective action plan is published or distributed, to prohibit or limit its further disclosure or reproduction in any form. In these instances the Corporation will identify this to the Society prior to the start of the investigation. The Society Representative, who will be a person designated by the Society Vice-President, may sign off that the Society is in agreement with Management's decision to withhold, prohibit or limit reproduction of the corrective action plan.***

3. ***It is agreed between the parties that joint investigations are performed to identify the root cause(s) of the incident and not to lay blame on any individual. It is agreed that any information gathered during the investigation process will not be used to discipline any Society member. If Management so desires they can conduct a separate investigation for disciplinary purposes.***

4. ***The team established will sign off on the final report. If the Society disagrees with the report the Society Representative's comments will be noted in the report.***

5. ***All applicable release costs and associated expenses shall be borne by the company as per the Collective Agreement and the Occupational Health and Safety Act.***

6. ***Joint Health and Safety Committee members and the Union Representatives shall have the right to review the management approved corrective action plan, except as noted in item 2 above.***

7. ***There will be a discussion between the parties prior to the release of a final report, by either party, that is not described in item 2 above.***

8. ***Either party may cancel this Letter of Understanding on 60 days' notice.***

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, April 18, 2005).

LETTER OF UNDERSTANDING

#14 Re: Career Bridge

Career Bridge is a non profit organization which connects internationally Qualified (foreign trained) Professionals with employers to gain Canadian work experience to help the individual succeed in today's market place.

Society represented employees may be utilized to mentor, train and to oversee training related assignments of Career Bridge participants. It is expected that any investment of time by Society represented employees in training and mentoring will be offset by the contributions of Career Bridge participants.

Hydro One and the Society support the goal of the Career Bridge program. To assist with its objectives, the parties agree to the following:

1. ***Internship lengths are of at least 4 months and can be extended to a maximum of 12 months at the discretion of Hydro One.***

2. ***Hydro One will advise the Society Office of each potential Career Bridge opportunity that is within the Society's jurisdiction prior to finalizing an agreement with Career Bridge.***

3. ***Career Bridge participants will not become employees of Hydro One.***

4. ***Career Bridge is the legal employer of the participants so all payroll administration and associated liabilities reside with Career Bridge.***

5. ***In order to make the internship as beneficial as possible, participants may be assigned training exercises consisting of work within the Society's jurisdiction.***

6. ***Participants will not be represented by the Society.***

7. ***There will be no adverse impact within the meaning of Articles 64 and/or 18 on a Society represented employee or the Society, including no reduction in Society represented positions (and associated hiring requirements) nor any displacement of Society represented employees from their positions, as a result of the Career Bridge program.***

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, February 28, 2006).

LETTER OF UNDERSTANDING

#15 Re: Exclusions Process

The following shall constitute full and final settlement of the issue of which newly-excluded MCP jobs must be processed through the exclusion process outlined in the collective agreement.

The following agreement only addresses situations where the newly-excluded MCP job is excluded under the new exclusion criterion (see Appendix III). It does not alter the practice associated with the other exclusion criteria, nor does it apply to jobs that have a MCP position reporting to them.

1) ***Vice-President jobs and/or jobs rated Band 4 or above do not need to go through the exclusion process. Hydro One will notify the Society about any applicable new jobs.***

2) ***Jobs rated Band 5 (without a MCP report), Band 6 (without a MCP report), Band 7 and below will be processed according to Article 2.5 of the collective agreement.***

3) ***The Director, Aboriginal Relations will be deemed to have been through the process. Hydro One will send the Society an overview of the job. If the Society has any issues with this job, the parties will meet to discuss. The Society has the right to challenge this exclusion through the grievance-arbitration process.***

In the event that Hydro One changes the system used to classify MCP jobs, or significantly alters the MCP band structure, the parties will attempt to reach agreement on how to apply the principles of this agreement to the new/modified classification system. Failing agreement, either party may refer this dispute to mediator-arbitrator Kevin Whitaker or a mutually agreeable alternate.

(Signed by Steve Strome for Hydro One and Keith Rattai for the Society, March 20, 2008).

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ARTICLE 12

PURCHASED SERVICES AGREEMENT

12.0 SCOPE

This Article has been developed jointly in a spirit of co-operation and trust. It is intended to provide a joint approach to making good business decisions which involve the use of purchased services. Its application calls for these decisions to be made in the same spirit of co-operation and trust.

What follows is based upon the belief that there is a value and benefit to the employee, the co-operation and the customer if:

- There is a greater involvement by employees in the decision-making process.
- There is an improved understanding as to why purchased services are used.
- Employment security is enhanced by a productive, healthy, and cost effective organization.
- Union and Management work together and act responsibly, balancing the interests of the customer, the Company and the employee in decisions relating to the use of purchased services.

This is a way of deciding how work gets done. It is not intended to hinder getting work done.

12.1 Assignment Of Work

12.1.1 Philosophy

It is the Company's intent to use regular staff to perform most of its work of a continuing nature. Furthermore, the Company will strive to provide regular staff with stability of employment.

The parties agree that a consistent, managed and joint approach to the assignment of work within the Company is necessary to provide security for employees, a more effective, productive organization and an excellent product for the customer.

12.1.2 Principles

The following principles apply to the relationship between the Company and the Union and the work performed by Union members.

(a) We will within the Company have all work conducted as effectively as possible.

(b) We will measure the effectiveness of all work by its impact on staff, on the business and by its ultimate impact on our customers.

(c) We will do most work of a continuing nature with Company employees.

(d) We will determine when work is to be done by non-PWU members through a joint decision making process and the results of these decisions will be a joint responsibility.

(e) We will ensure that the impact of these decisions on continuous employment is minimized.

(f) We will use a team and consensus approach when making decisions and any issues arising will be resolved internally where possible.

(g) We will consult and make timely decisions consistent with the need to get work done.

(h) We will develop, implement and continue a joint process of communications and education.

(i) We will achieve consistency through the use of these principles versus policy and procedure.

12.2 Decision Process (See Mid-Term Agreement MT-50-2 also)

12.2.1 Responsibility for Decisions

The persons who are responsible for applying the decision process are the Company representative with the appropriate decision authority and the Union representative designated by the Sector Vice President. It is recognized that a given decision may require the involvement of more than these two persons.

Subject to 12.2.6 and 12.3.2(c) below, decisions to use purchased services will be made on a consensus basis. Both parties must consider all relevant criteria with the mutual goal of selecting the most effective option.

The decision makers are responsible for making timely decisions and for the decision itself.

12.2.2 Opportunity

The parties recognize that work may be done more effectively internally or externally. Opportunities for the application of this Article to new or existing work can be initiated by Management and/or the Union. It is intended that joint discussion should commence as soon as possible and before detailed definition of the need to have new or existing work done by purchased services.

12.2.3 Definition of Need

The parties will consider what work must be done and why and include such dimensions as when it must commence and the duration of the work; the quantity of resources required; the quality of the results; the skills required and their availability internally and externally; and safety requirements.

12.2.4 Alternatives

The parties will consider such alternatives as, do the work internally; do part of the work internally and part externally; do the work externally and agree to acquire capability to do the work internally in future; or do the work externally.

12.2.5 Evaluation

The parties will evaluate the alternatives considering the impact on the customer, employees and the business. Such criteria as reliability of service to the customer, customer responsiveness, community impact, Company relations impact, job continuity, ability to perform work, degree of overtime required for the work, availability of resources, cost, timeliness, quality, need for control over results, safety and impact on environment will be assessed.

The total effectiveness of the alternatives will be evaluated considering both the short and long-term impacts. In given situations, certain criteria may be given a greater or lesser degree of importance.

12.2.6 Establishment of Thresholds

The establishment of the threshold is designed to remove from the process on a case by case basis certain issues relating to purchased services. The threshold will operate in such a way as to allow flexibility in local decision making. Any decisions regarding what is below the threshold will be non-precedent setting.

If there is a dispute with the union on whether the proposed purchased service is permitted by the threshold and there is no consensus, and if it makes sense in the circumstances the dispute will be resolved before the purchased service occurs. Lack of agreement on obtaining an advance resolution will not preclude the work from being performed, neither will it preclude the matter from being resolved under the 12.2.7 process.

The guidelines to determine whether a purchased service is below the threshold are as follows:

- subject matter lacking in substance; or
- any consequences are relatively insignificant; or
- where the nature or consequences of the work which represents a purchased service is remote from work currently performed by the PWU on a continuing basis. For purposes of clarity, this does not mean geographically remote; or
- emergencies; or
- any work performed under a manufacturer's warranty, except where the manufacturer authorized the Company to do the work.

Except in the case of an emergency, failure by the Company to supply the Union with the following information by fax or as otherwise agreed will result in the work in question being deemed to be above threshold. (In the case of emergency such decisions to use purchased services will be subject to the same information requirements, review and dispute resolution as non-emergency cases).

The Company will notify the Union of the:

- Value of Work as reflected in Tender/Contract/Bid or Estimate Documents

- Scope of the Work

- Location of Work

- Estimated Date of Commencement and Duration of the Work

Except in the case of emergency, after receipt of the above information regarding the work the union shall have three (3) working days to request an opportunity to discuss the proposed purchased service, failing which the proposed purchased service will be deemed to be below threshold.

The parties will make themselves available for discussion within three (3) working days of the request for a discussion.

Upon request, once the work has been performed the Company will provide the Union with the details of the final contract costs.

(a) Threshold grievances will be completed by the Chief Steward responsible for the PSA and presented to the line Management person responsible for the work in question.

(b) Line Management must respond in writing to the grievance citing its position within 48 hours (as is required with all other grievances). Both parties should endeavour locally to complete a Record of Discussion form or an agreed statement of fact sheet.

(c) The PWU office will assign a grievance number. Copies of the completed grievance and associated fact sheets or Records of Discussion forms should be sent to the PWU office and Labour Relations - Corporate Human Resources.

(d) Grievances will be referred to Arbitration and scheduled through joint agreement between Labour Relations - Corporate Human Resources and the PWU office.

(e) If it makes sense to do so, local discussions may take place with a view to resolving the threshold grievance up to the arbitration date.

12.2.7 Dispute Resolution Process

(a) Mr. Teplitsky shall be appointed as Facilitator to assist the parties to resolve all issues of application and interpretation of this Article with the power and authority of an arbitrator under the *Ontario Labour Relations Act* but not subject to the Arbitrators' Act.

(b) Any dispute between the parties relating to whether this Article applies to any decision to use purchased services or if a purchased service falls within the categories set out in 12.2.6 will be determined in an expedited manner by the facilitator whose decision shall be final and binding.

(c) The Union will not be prejudiced in any subsequent case by a particular purchase of services. Similarly, the Company will not be prejudiced by any decision not to purchase services. This applies to all cases including threshold cases.

12.3 Joint Resolution Committee

12.3.1 Purpose

The purpose of this Joint Committee is to resolve disagreements, on a consensus basis in a timely and expeditious manner, as to whether proposed purchased services which are above threshold above may proceed. In its deliberations, the committee will consider the factors in items 12.0, 12.1 and 12.2.

Prior to a meeting of the Joint Committee, the Company will provide the Union with the following information related to the proposed PSA:

- copies of the Tender or Request for Proposal documents, if there are any;
- an accurate description of the work which is the subject of the proposed PSA;
- accurate details on bids e.g., price, scope of the work as set forth in the bid;
- a full cost benefit analysis including incremental costs but excluding overhead costs which would be incurred.

12.3.2 Membership

The membership of the Joint Committee shall be as follows:

(a) The facilitator Mr. Teplitsky who shall act as Chairperson;

(b) One Management and one union representative plus additional resources as required.

(c) In the event of the parties not being able to reach a consensus decision the facilitator will have the power to make decisions. Mr. Teplitsky will have the authority to make such orders as he deems appropriate to give full affect to his decision(s) and to deal with any consequences his decision(s) might have in the workplace.

(d) Where either party wishes to proceed with a Purchased Services discussion which is above threshold, the parties will endeavour to complete discussion within 10 days of notice to the union in the prescribed form and that full resolution, including review by the JRC, will occur within 30 days of notification.

12.4 Application of This Article

12.4.1 The parties will jointly develop and maintain an operating plan consistent with the provisions of this Article. Such plans will be approved by the appropriate Company official and the Power

Workers' Union Vice President. Failure to jointly develop an operating plan will not adversely affect either party's rights under the provisions of this Article.

These operational plans will include:

- An approach for the development and delivery of joint training of decision makers
- An identification of the type of contracts that are not subject to an in-depth review.
- A guideline for a time table on how often contracts of a recurring nature must be reviewed under this Article.
- A process for joint review of potential contracts which involve work normally performed by PWU represented employees and other stakeholders.
- A process and a time frame for decision making.
- An internal process for dispute resolution.

12.4.2 Management and Union representatives may choose to jointly review the application of their operating plan and determine the need for changes at any time over the life of this agreement.

12.4.3 Until March 31, 20***11***, Article 13, Article 14, Mid-Term Agreement MT-12 Contracting Out, MT-21, MT-21 Appendix A, and Mid-Term Agreement MT-14 Future Agency Employees are suspended. Item 12.1 of this Article will apply to decisions regarding the use of agency employees.

ARTICLE 12 – APPENDIX A

The provisions in this Appendix and Article 12.3.2 (c) are to be applied to those situations where employees are given surplus status as a result of a joint or arbitrated decision to use purchased services to do the work normally performed by the affected employees. The definitions contained in Articles 10 and 11 will also apply to this Appendix.

1.0 JOINT EMPLOYMENT SECURITY COMMITTEE

The function of the Joint Employment Security Committee is to resolve disputes regarding the appropriate application of this Appendix.

The committee will consist of six regular members, three representing the Union and three representing the Company. Two additional members from each party may be added from a work unit affected by the surplus situation under consideration. Meetings may be called by either party.

In all disputes referred to the committee for settlement, the committee's decision will be final and binding on both parties.

In the event that the Joint Employment Security Committee is unable to resolve a dispute, it will be referred to Mr. Teplitsky. The intention of both parties is to have a speedy resolution of the dispute. Verbal decisions which will be confirmed by a written decision will be acceptable and all decisions are final and binding on both parties.

2.0 EMPLOYMENT SECURITY

The provisions of this Appendix will apply to a regular employee with two (2) or more years' seniority who becomes surplus from his/her position as a result of contracting out the work normally performed by that employee. The effect of decisions to use purchased services on PWU members will be minimized by accommodating required staff reductions wherever possible by attrition, transfer to other jobs or retraining. Redeployment/career counselling will be made available to affected staff when they are notified of their surplus status. Training and career options will be discussed and incorporated into the redeployment plan. Reasonable training and educational leave will be applied as appropriate. The provisions of this Article will not apply to regular-seasonal employees. The definitions contained in Articles 10 and 11 will also apply to this Appendix.

For the purposes of determining if the employee has sufficient seniority to qualify for this Appendix, his/her seniority will be counted up to the surplus date.

2.1 Surplus Identification

When a decision to contract out results in a surplus in a classification in any work site the least senior employee in that classification in the work site shall be identified as surplus. Such employees will be able to apply for vacancies as per Article 10.

2.1.2 If an employee with five (5) or more years seniority has not been selected to a vacancy within one (1) year after the surplus date, or an employee with two (2) years but less than five (5) years'

seniority has not been selected to a vacancy within sixteen (16) weeks after the surplus date, he/she will be given displacement rights as contained in Article 11 and all other terms and conditions of Article 11 will apply. At this time all other provisions of Appendix A will cease to apply.

2.1.3 The one (1) year period for employees with five or more years' seniority and the sixteen week period for employees with two or more but less than five years' seniority is designed to allow employees not selected to vacancies to avail themselves of the retraining and reskilling opportunities outlined in 2.0 prior to any displacement as per Article 11.

2.2 Wage and Salary Treatment

2.2.1 Seniority - Five Years or More

The employee's grade and progression step shall be maintained and negotiated increases shall apply for one (1) year from the surplus date regardless of placement. If the employee accepts a vacancy in a lower-rated classification his/her dollar rate shall be frozen at the end of the one (1) year until the rate for the classification equals the employee's dollar rate, at which time the normal wage and salary treatment shall apply.

2.2.2 Seniority - Two Years - Less than Five Years

The employee's grade and progression step shall be maintained and negotiated increases shall apply for sixteen (16) weeks from the surplus date regardless of placement. If the employee accepts a vacancy in a lower-rated classification his/her dollar rate shall be frozen at the end of sixteen (16) weeks for a period of three (3) months at which time a four percent (4%) reduction in rate will take place. Subsequent reductions of four percent (4%) will take place annually thereafter until the maximum rate for the lower-rated job is reached.

2.3 General Conditions

2.3.1 Notwithstanding the provisions of this Article an employee who is within five years of normal retirement or within five years of eligibility for undiscounted pension when faced with displacement or layoff, with joint agreement may be given special consideration for work site protection/preference.

Notwithstanding the provisions of this Article, the parties may make special arrangements for employees who are disabled to the extent that alternative employment would be difficult to find.

2.4 Moving Expenses

Prior to Article 11 applying, an employee who is identified as surplus as per this Appendix and is required to relocate his/her residence shall receive moving expenses in accordance with the provisions of Part A, Item 23. Such moves will be treated as Company-initiated moves.

POWER WORKERS' UNION
MID-TERM AGREEMENTS

Number: MT-50-2

Original Date:
2001/04/01

Revision
Dates:2002/04/01

Last Revised:
2008/04/01

It is jointly agreed that the following Mid-Term Agreement shall form part of the Collective Agreement between the parties:

Provincial Purchased Services Agreements

The parties agree to the listing of provincial Purchased Services Agreements as identified in Schedule 1 (see Attachment 1). This list will not be subject to Appendix A. The parties will review the listing on a yearly basis. An employee will not be laid off as a direct result of contracting out their work.

Work that has been contracted out will, when necessary, be considered in the development of rehabilitation plans for employees.

Each subsidiary will provide to the Power Workers' Union, at the end of June and at the end of the calendar year, a list of contracts let under MT-50-1 during the year including total contract dollars. For 2002 the period is from April 1 to December 31.

The parties agree to meet quarterly in the spirit of co-operation and trust to discuss the usageof:
1) Rock Drills
2) Vacuum Trucks
3) Floating Services

The company will provide the PWU with:
. Value of work as reflected in tender/Contract/Bid or Estimate Documents
. Scope of Work
. Location of Work
. Estimated date of commencement and duration of work

The parties will discuss the feasibility of purchasing equipment where it makes good business sense.

Steve Strome	**Mel Hyatt**
HYDRO ONE INC.	POWER WORKERS' UNION

DATE

Attachment to MT-50-2

Attachment 1

Schedule 1

. Janitorial
. Snow Removal
. Grass Cutting and General Grounds Clean-up
. Heavy Equipment Operator (Backhoe etc.)
. Specialized Equipment Operator (Rock Drilling) etc.
. Printing Services
. Data Centre (eg. Murray Street facility replacement)
. Water Heater Maintenance, Installation and Removal
. Office/Furniture Moves
. Office Services provided by the landlord
. First Nations Contractors working on and adjacent to First Nations Land where a significant majority of the contract work is on First Nations Land
. Drive back and delivery services
. Minor fleet maintenance
. Minor office modifications

33.5 Temporary Employees and Purchased Services

33.5.1 Management shall give serious consideration and where possible (e.g., cost effective and timely) give preference to the option of using temporary employees rather than using purchased services.

67 PURCHASED SERVICES

(Suspended for term of the collective agreement except for the last bullet).

67.1 Approvals

67.4.1 Blanket annual PSA approval will be given for each organization headed by a direct report to the President at the beginning of each calendar year subject to the following conditions:

- Hydro One commits to use regular staff for most core work;
- External resources will be primarily used for work such as supplementing peaks, responding to new business opportunities, low value work, non-recurring work etc.;
- Hydro One commits to enhancing and maintaining skill level of staff;
- As soon as possible and in any event no later than early in the calendar year each direct report to the President will review and discuss the staffing strategy with the Society Hydro One Local Vice-President for the purpose of trying to reach a common understanding with respect to the strategy. If a common understanding cannot be reached, management will make the final decision;
- Each direct report to the President will provide to the Society at the end of the calendar year a list of contracts let during the year including total contract dollars;
- No employee will be laid off as a direct result of contracting out.

Section 2 – Scope of Agreement
200 Recognition

D. The terms “Employer” or “Employers” shall include Hydro One and other Employers as identified in paragraph E (i) below. Employers other than Hydro One who have successfully bid for work will be covered by this collective agreement for the duration of that work.

E. Hydro One reserves the right to contract out work. When contracting out work Hydro One will do so in accordance with the following:

(i) Employers in contractual relations with the union, Employers having no union contractual relations, and Employers in contractual relations with unions other than IBEW, shall work under the terms and conditions of this agreement when performing work within the scope of this agreement.

(ii) Employers in contractual relations with IBEW will sign a Labour requirements Form which will stipulate the following minimum standards to which they are required to comply as a prerequisite to performing work within the scope of this collective agreement : Hours of Work, Wages , Benefits, Travel , Room and Board

Terms of Reference
RFP Number 22899
Services Required – Employee Engagement Survey

Project Description

- Hydro One Networks Inc. is seeking the services of a consulting company with extensive relevant capability and experience in order to
    - Conduct an employee survey/s aimed at measuring employee engagement and
    - Assist the Management of Hydro One Networks to optimize the company's employment engagement strategy

Services required: Phase 1

- Consultation with Hydro One's Senior Management to confirm surveying requirements and project deliverables, project team membership etc.
- Design of the survey, based as far as possible on a standard survey instrument, with only limited customization
- Design and execution of the Survey process using multiple data collection methods – on-line, paper-based mail out etc. to ensure that all employees have the opportunity to participate.
- Recommendation for a management communication strategy (to employees, Unions) pre- and post-Survey
- Analysis of Survey response data
- Development for Hydro One Management of a range of Reports on survey outcomes e.g. Company wide, by Line of Business, Union jurisdiction etc. and with particular emphasis on comparison of Hydro One's outcomes with those of similar organizations – by industry, size, ownership structure etc.
- Support as appropriate to Hydro One in communicating survey outcomes to employees

Services required: Phase 2

- Design and support for survey-based action planning process, including recommendations for changes to Hydro One's Engagement/Retention Strategy
- Design and execution of a further survey cycle/s after an appropriate interval to measure change in engagement levels over time as a result of survey – driven management actions